

Chapter 6: Supply, Demand, and Government Policies: 6-1a How Price Ceilings Affect Market Outcomes  
 Book Title: Principles of Microeconomics  
 Printed By: shawanda shepard (sshepard2@my.waketech.edu)  
 © 2015, 2012 Cengage Learning, Cengage Learning

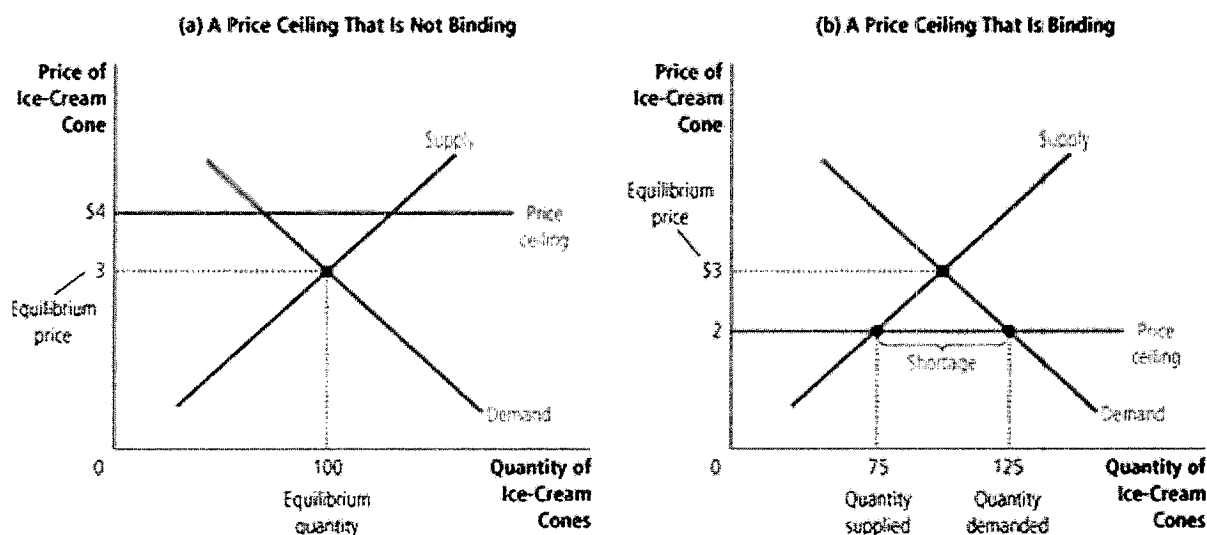
## 6-1a How Price Ceilings Affect Market Outcomes

When the government, moved by the complaints and campaign contributions of the Ice-Cream Eaters, imposes a price ceiling on the market for ice cream, two outcomes are possible. In panel (a) of Figure 1, the government imposes a price ceiling of \$4 per cone. In this case, because the price that balances supply and demand (\$3) is below the ceiling, the price ceiling is *not binding*. Market forces naturally move the economy to the equilibrium, and the price ceiling has no effect on the price or the quantity sold.

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.



Panel (b) of Figure 1 shows the other, more interesting, possibility. In this case, the government imposes a price ceiling of \$2 per cone. Because the equilibrium price of \$3 is above the price ceiling, the ceiling is a *binding constraint* on the market. The forces of supply and demand tend to move the price toward the equilibrium price, but when the

market price hits the ceiling, it cannot, by law, rise any further. Thus, the market price equals the price ceiling. At this price, the quantity of ice cream demanded (125 cones in Figure 1) exceeds the quantity supplied (75 cones). There is a shortage: 50 people who want to buy ice cream at the going price are unable to do so.

In response to this shortage, some mechanism for rationing ice cream will naturally develop. The mechanism could be long lines: Buyers who are willing to arrive early and wait in line get a cone, but those unwilling to wait do not. Alternatively, sellers could ration ice-cream cones according to their own personal biases, selling them only to friends, relatives, or members of their own racial or ethnic group. Notice that even though the price ceiling was motivated by a desire to help buyers of ice cream, not all buyers benefit from the policy. Some buyers do get to pay a lower price, although they may have to wait in line to do so, but other buyers cannot get any ice cream at all.

This example in the market for ice cream shows a general result: *When the government imposes a binding price ceiling on a competitive market, a shortage of the good arises, and sellers must ration the scarce goods among the large number of potential buyers.* The rationing mechanisms that develop under price ceilings are rarely desirable. Long lines are inefficient because they waste buyers' time. Discrimination according to seller bias is both inefficient (because the good does not necessarily go to the buyer who values it most highly) and potentially unfair. By contrast, the rationing mechanism in a free, competitive market is both efficient and impersonal. When the market for ice cream reaches its equilibrium, anyone who wants to pay the market price can get a cone. Free markets ration goods with prices.

### Case Study

#### Lines at the Gas Pump

As we discussed in Chapter 5, in 1973 the Organization of Petroleum Exporting Countries (OPEC) raised the price of crude oil in world oil markets. Because crude oil is the major input used to make gasoline, the higher oil prices reduced the supply of gasoline. Long lines at gas stations became commonplace, and motorists often had to wait for hours to buy only a few gallons of gas.

What was responsible for the long gas lines? Most people blame OPEC. Surely, if OPEC had not raised the price of crude oil, the shortage of gasoline would not have occurred. Yet economists blame U.S. government regulations that limited the price oil companies could charge for gasoline.

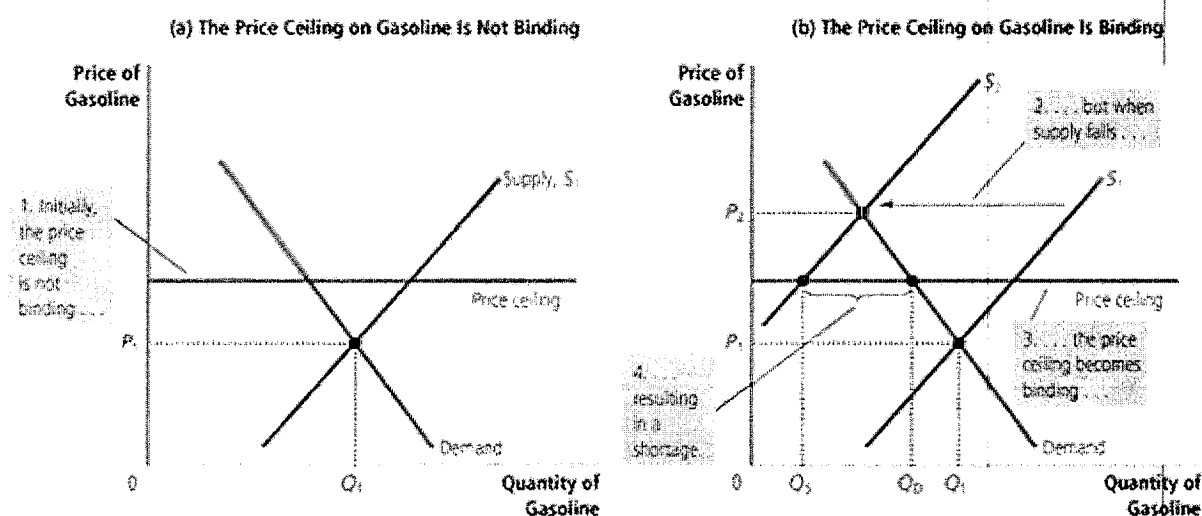
Figure 2 shows what happened. As shown in panel (a), before OPEC raised the price of crude oil, the equilibrium price of gasoline,  $P_1$ , was below the price ceiling. The price regulation, therefore, had no effect. When the price of crude oil rose,

however, the situation changed. The increase in the price of crude oil raised the cost of producing gasoline, and this reduced the supply of gasoline. As panel (b) shows, the supply curve shifted to the left from  $S_1$  to  $S_2$ . In an unregulated market, this shift in supply would have raised the equilibrium price of gasoline from  $P_1$  to  $P_2$ , and no shortage would have resulted. Instead, the price ceiling prevented the price from rising to the equilibrium level. At the price ceiling, producers were willing to sell  $Q_S$ , and consumers were willing to buy  $Q_D$ . Thus, the shift in supply caused a severe shortage at the regulated price.

**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.



Eventually, the laws regulating the price of gasoline were repealed. Lawmakers came to understand that they were partly responsible for the many hours Americans lost waiting in line to buy gasoline. Today, when the price of crude oil changes, the price of gasoline can adjust to bring supply and demand into equilibrium.

## Case Study

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

One common example of a price ceiling is rent control. In many cities, the local government places a ceiling on rents that landlords may charge their tenants. The goal of this policy is to help the poor by making housing more affordable.

Economists often criticize rent control, arguing that it is a highly inefficient way to help the poor raise their standard of living. One economist called rent control "the best way to destroy a city, other than bombing."

The adverse effects of rent control are less apparent to the general population because these effects occur over many years. In the short run, landlords have a fixed number of apartments to rent, and they cannot adjust this number quickly as market conditions change. Moreover, the number of people searching for housing in a city may not be highly responsive to rents in the short run because people take time to adjust their housing arrangements. Therefore, the short-run supply and demand for housing are relatively inelastic.

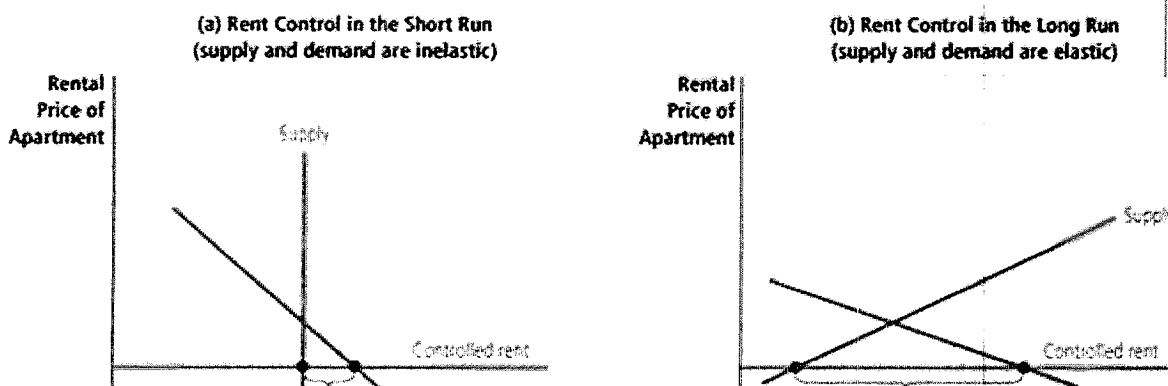
Panel (a) of Figure 3 shows the short-run effects of rent control on the housing market. As with any binding price ceiling, rent control causes a shortage. Yet because supply and demand are inelastic in the short run, the initial shortage caused by rent control is small. The primary effect in the short run is to reduce rents.

Figure 3

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





The long-run story is very different because the buyers and sellers of rental housing respond more to market conditions as time passes. On the supply side, landlords respond to low rents by not building new apartments and by failing to maintain existing ones. On the demand side, low rents encourage people to find their own apartments (rather than living with their parents or sharing apartments with roommates) and induce more people to move into a city. Therefore, both supply and demand are more elastic in the long run.

Panel (b) of Figure 3 illustrates the housing market in the long run. When rent control depresses rents below the equilibrium level, the quantity of apartments supplied falls substantially, and the quantity of apartments demanded rises substantially. The result is a large shortage of housing.

In cities with rent control, landlords use various mechanisms to ration housing. Some landlords keep long waiting lists. Others give a preference to tenants without children. Still others discriminate on the basis of race. Sometimes apartments are allocated to those willing to offer under-the-table payments to building superintendents. In essence, these bribes bring the total price of an apartment closer to the equilibrium price.

To understand fully the effects of rent control, we have to remember one of the *Ten Principles of Economics* from Chapter 1: People respond to incentives. In free markets, landlords try to keep their buildings clean and safe because desirable apartments command higher prices. By contrast, when rent control creates shortages and waiting lists, landlords lose their incentive to respond to tenants' concerns. Why should a landlord spend money to maintain and improve the property when people are waiting to get in as it is? In the end, tenants get lower rents, but they also get lower-quality housing.

Policymakers often react to the effects of rent control by imposing additional regulations. For example, various laws make racial discrimination in housing illegal and require landlords to provide minimally adequate living conditions. These laws, however, are difficult and costly to enforce. By contrast, when rent control is eliminated and a market for housing is regulated by the forces of competition, such laws are less necessary. In a free market, the price of housing adjusts to eliminate the shortages that give rise to undesirable landlord behavior.

Chapter 6: Supply, Demand, and Government Policies: 6-1a How Price Ceilings Affect Market Outcomes

Book Title: Principles of Microeconomics

Printed By: shawanda shepard (sshepard2@my.waketech.edu)

© 2015, 2012 Cengage Learning, Cengage Learning

© 2017 Cengage Learning Inc. All rights reserved. No part of this work may be reproduced or used in any form or by any means - graphic, electronic, or mechanical, or in any other manner - without the written permission of the copyright holder.