



Price Ceilings and Price Floors

Chapter 8

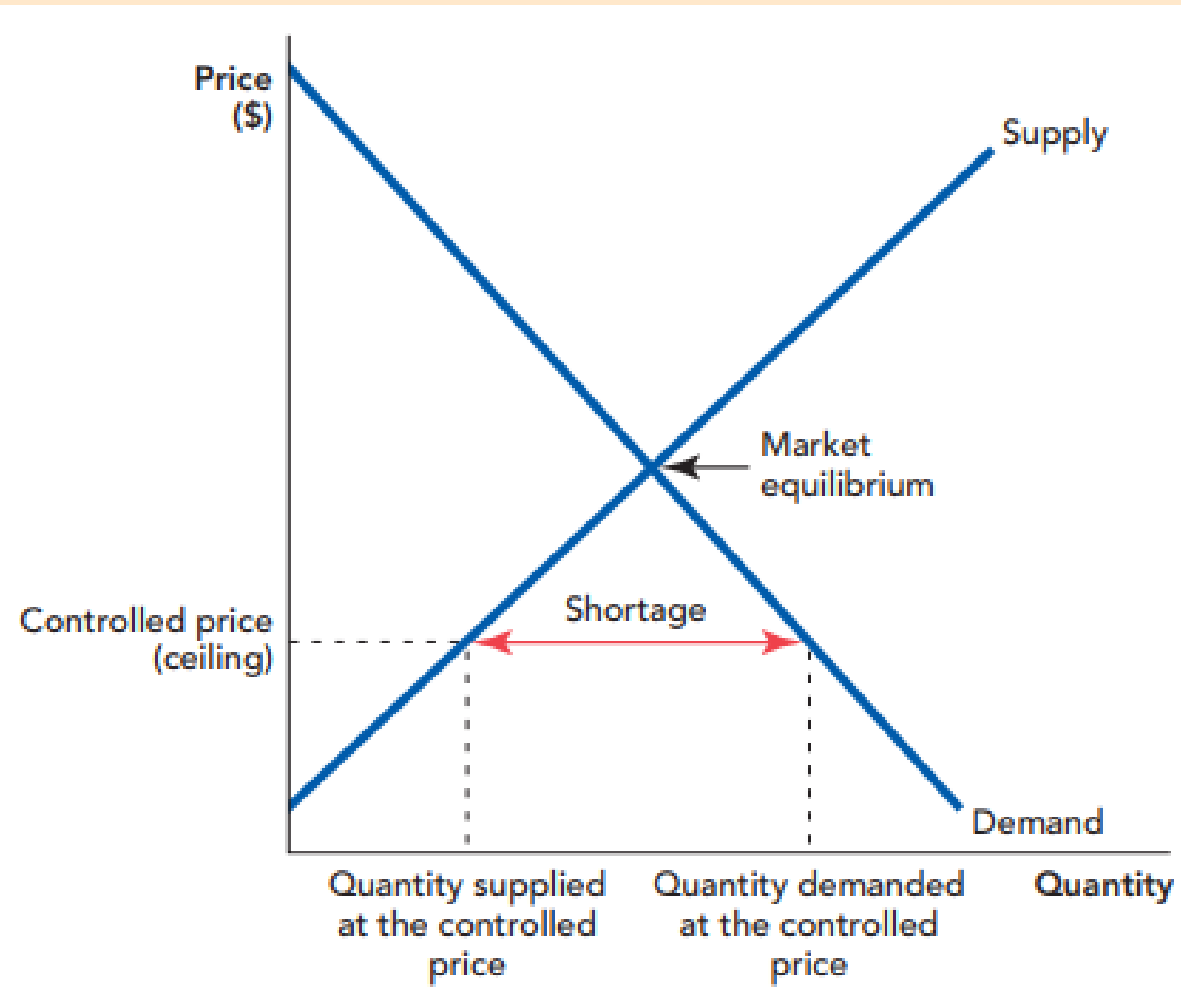
Objectives

- To understand price ceilings and price floors
 - What they mean?
 - How they affect supply and demand?
 - How they affect welfare?

Price Ceilings

- A **price ceiling** is a maximum price allowed by law.
- When the maximum price that can be legally charged is below the market price, we say that there is a price ceiling.
- Economists call it a price ceiling because prices cannot legally go higher than the ceiling.

FIGURE 8.1



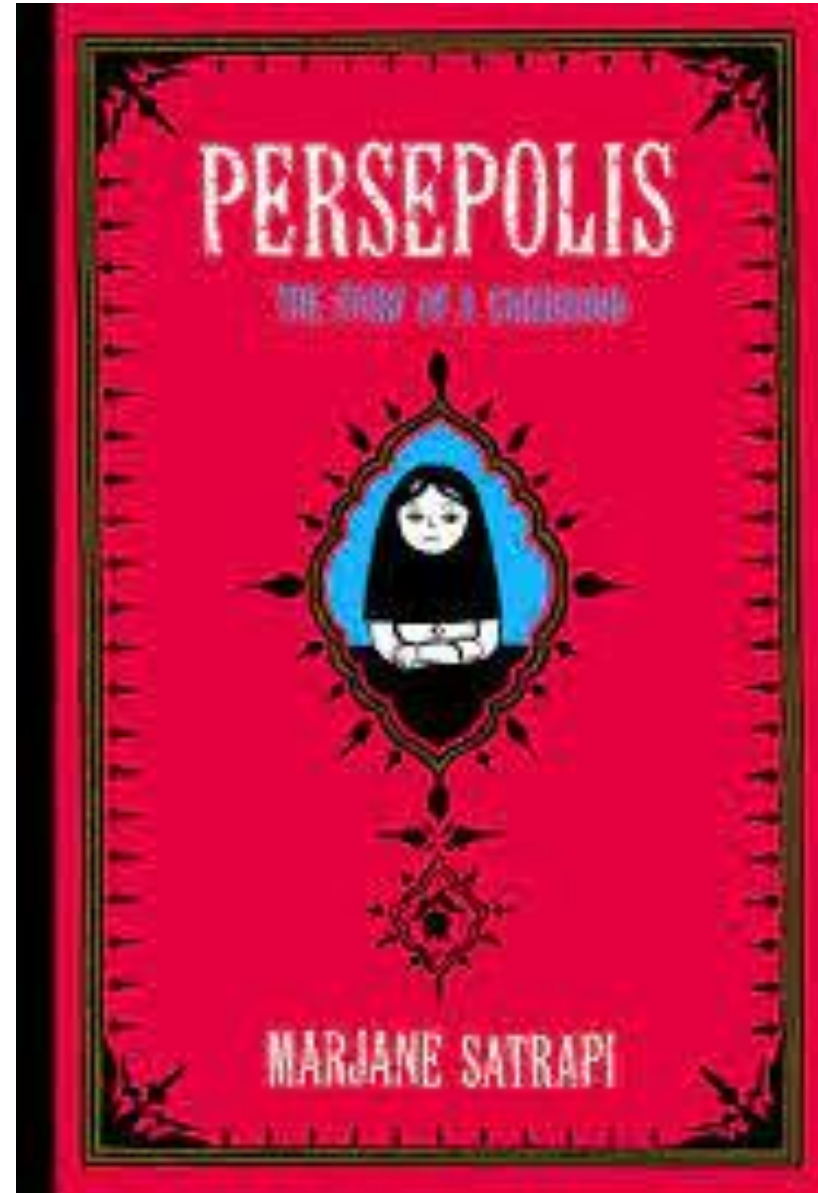
Price Ceilings Create Shortages At the controlled price, the quantity demanded exceeds the quantity supplied, creating a shortage.

Economic consequences of price ceilings

- Shortages
- Reduction in product quality and quantity
- Wasteful lines and other (search) costs
- Loss of gains from trade
- A Misallocation of resources

Price controls of the 70s

- The most serious shortage during the 1970s was for oil. The OPEC embargo in 1973 and the reduction in supply caused by the Iranian Revolution in 1979 increased the world price of oil.
- The United States did not lift price controls on domestically produced oil and thus the United States faced intense shortages of oil and the classic sign of a shortage, lines

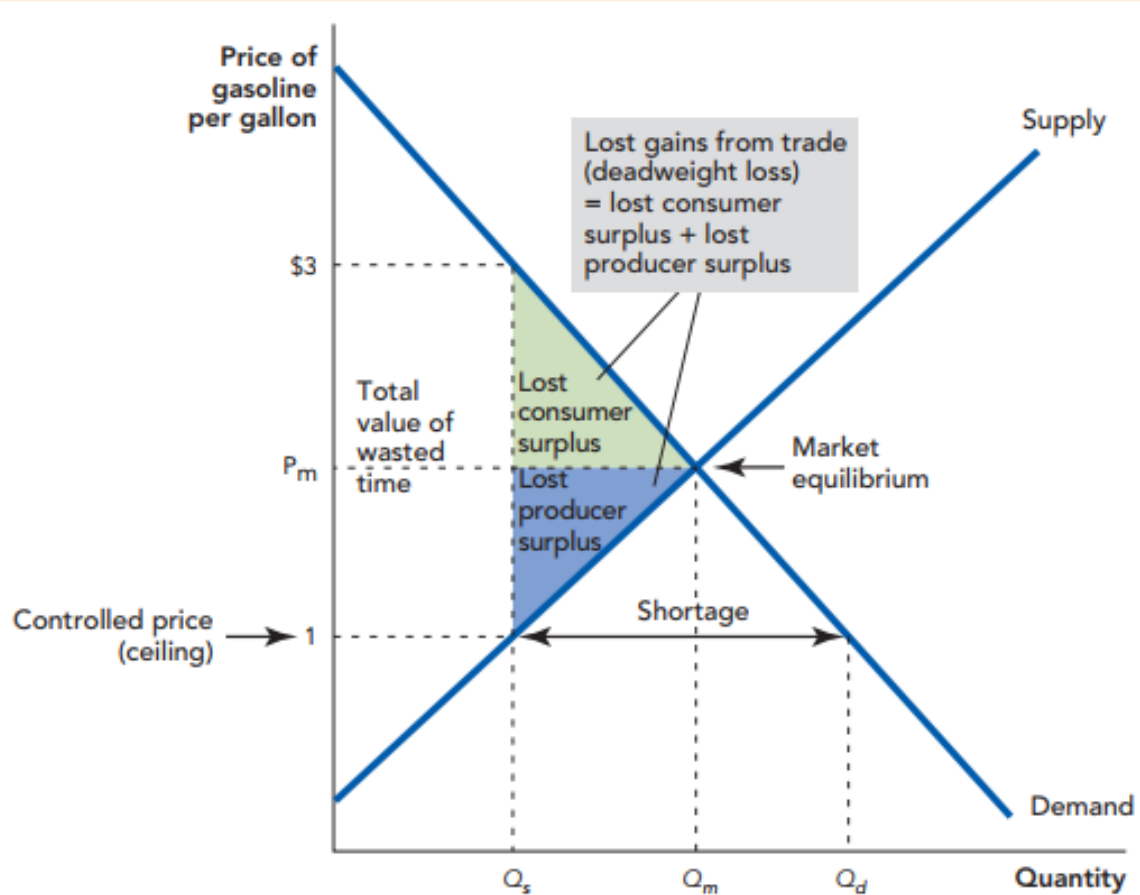


Price controls of the 70s

- Corruption and bribes can be common, especially when price controls are long-lasting, but they were not a major problem during the gasoline shortages of the 1970s.
- The total price of gasoline rose well above the controlled price. Instead of competing by paying bribes, buyers competed by their willingness to wait in line.
- At the controlled price the quantity of gasoline demanded is greater than the quantity supplied, so some buyers are going to be disappointed—they are going to get less gasoline than they want and some buyers may get no gasoline at all.
- Buyers will compete to avoid being left with nothing.

Example: Gasoline prices

FIGURE 8.3



A Price Ceiling Reduces the Gains from Trade At the controlled price, Q_s units are supplied and buyers are willing to pay just slightly less than \$3 for an additional gallon of gasoline that sellers are willing to sell for just slightly more than \$1. Although mutually profitable, these trades are illegal. If all mutually profitable trades were legal, the gains from trade would increase by the green plus blue triangle.

What happens when a price ceiling is implemented?

- Demanders are willing to pay \$2.95 for an additional gallon of gas, suppliers are willing to sell an additional gallon for \$1.05, therefore, there is \$1.90 of potential gains from trade to split between them.
 - But it's not legal for suppliers to sell gasoline at any price higher than \$1!
- Buyers and sellers want to trade, but they are prevented from trading by the threat of jail.
- If the price ceiling were lifted and trade were allowed, the quantity traded would expand from Q_s to Q_m and buyers would be better off.

Practice Questions

1. Price ceiling on gasoline might be expected to cause
 - a. increased advertising of gasoline.
 - b. gasoline to be rationed or allocated to people in different quantities than would have occurred otherwise.
 - c. longer hours of operation at most service stations.
 - d. poor people to be assured of an adequate supply of gasoline.

Practice Questions

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Practice Questions

If a price ceiling prevents a market from clearing

- a. price will rise.
- b. quantity supplied will rise.
- c. other ways of rationing the good will be found.
- d. all of the above.

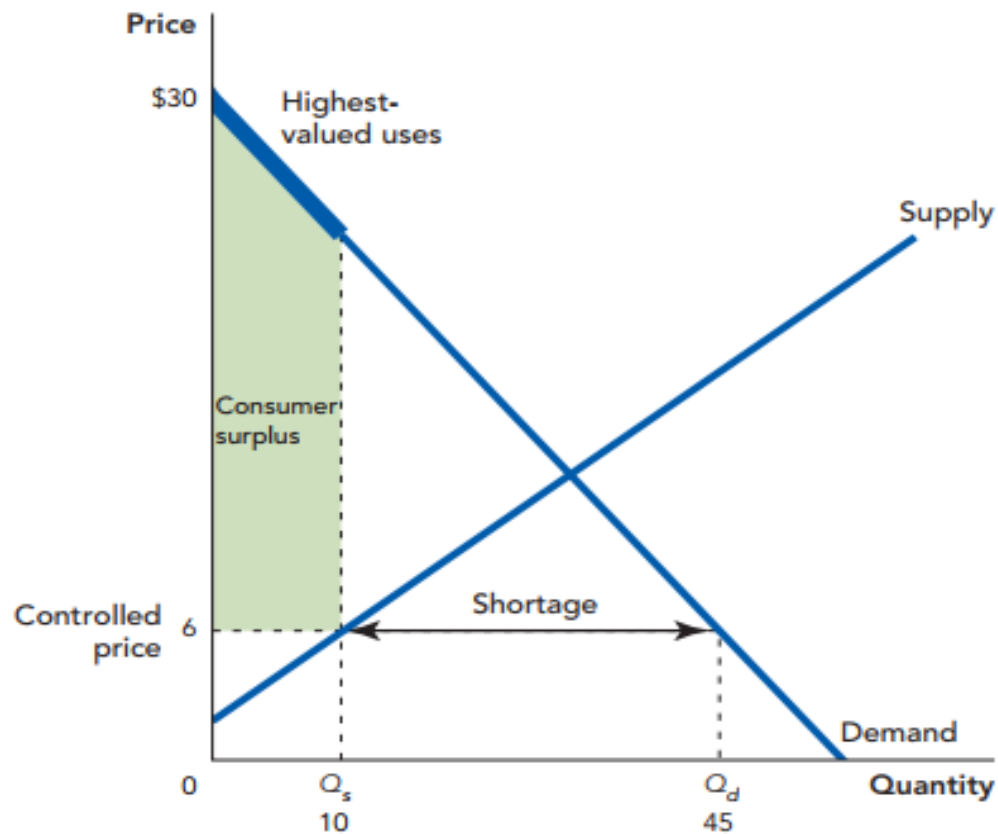
Practice Questions

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How does price ceiling affect consumer surplus?

FIGURE 8.6



In a Free Market Goods Flow to Their Highest-Value Uses

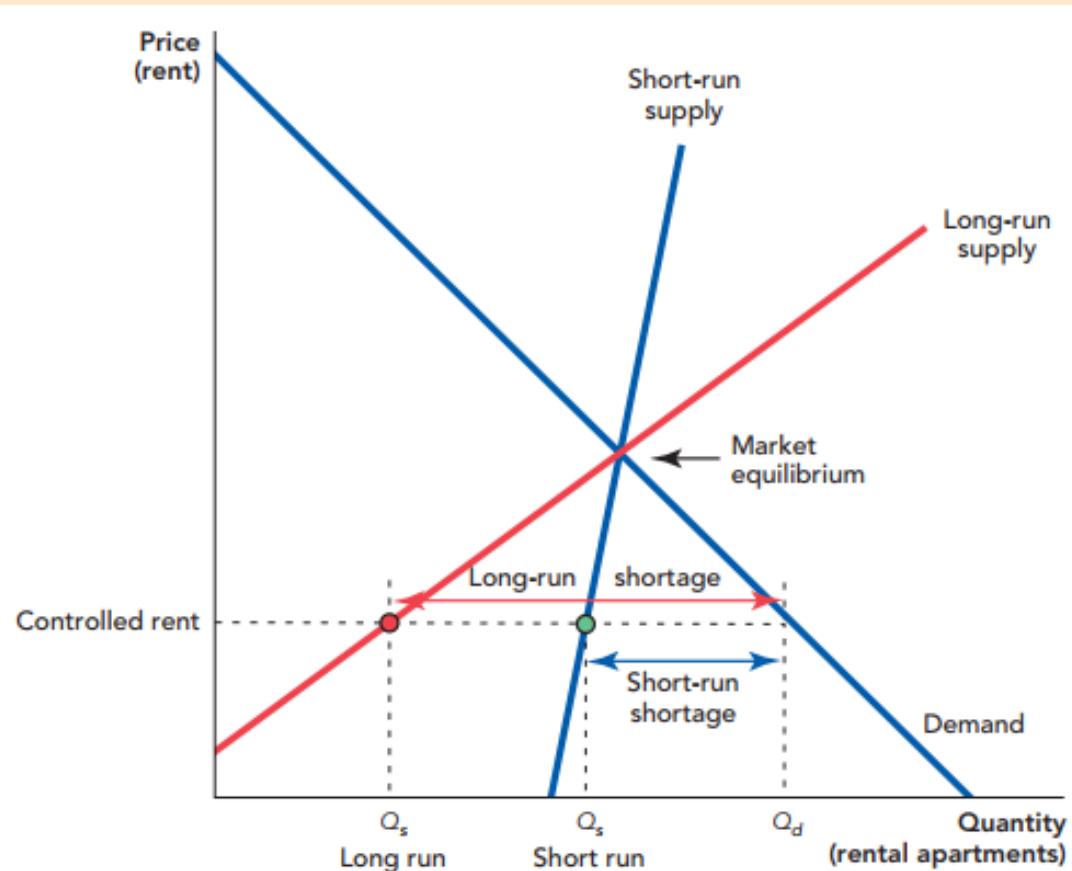
If all units of the good are allocated to the highest-valued uses, then consumer surplus is the area between the demand curve and the price up to the quantity supplied.

How does price ceiling affect consumer surplus?

- If there were no misallocation, a price control would result in a consumer surplus between the demand curve and the price up to the quantity supplied.
Under a price control, the good is not necessarily allocated to the highest-valued uses. Therefore, consumer surplus will be less than the green area
- The worst-case scenario will be when all the goods were allocated to the lower-valued uses, but that's not a likely scenario.
- A more realistic assumption is that under price controls, goods are allocated randomly so that a high-valued use is as likely as a low-valued use to be satisfied

Rent control: Long run vs short run

FIGURE 8.8



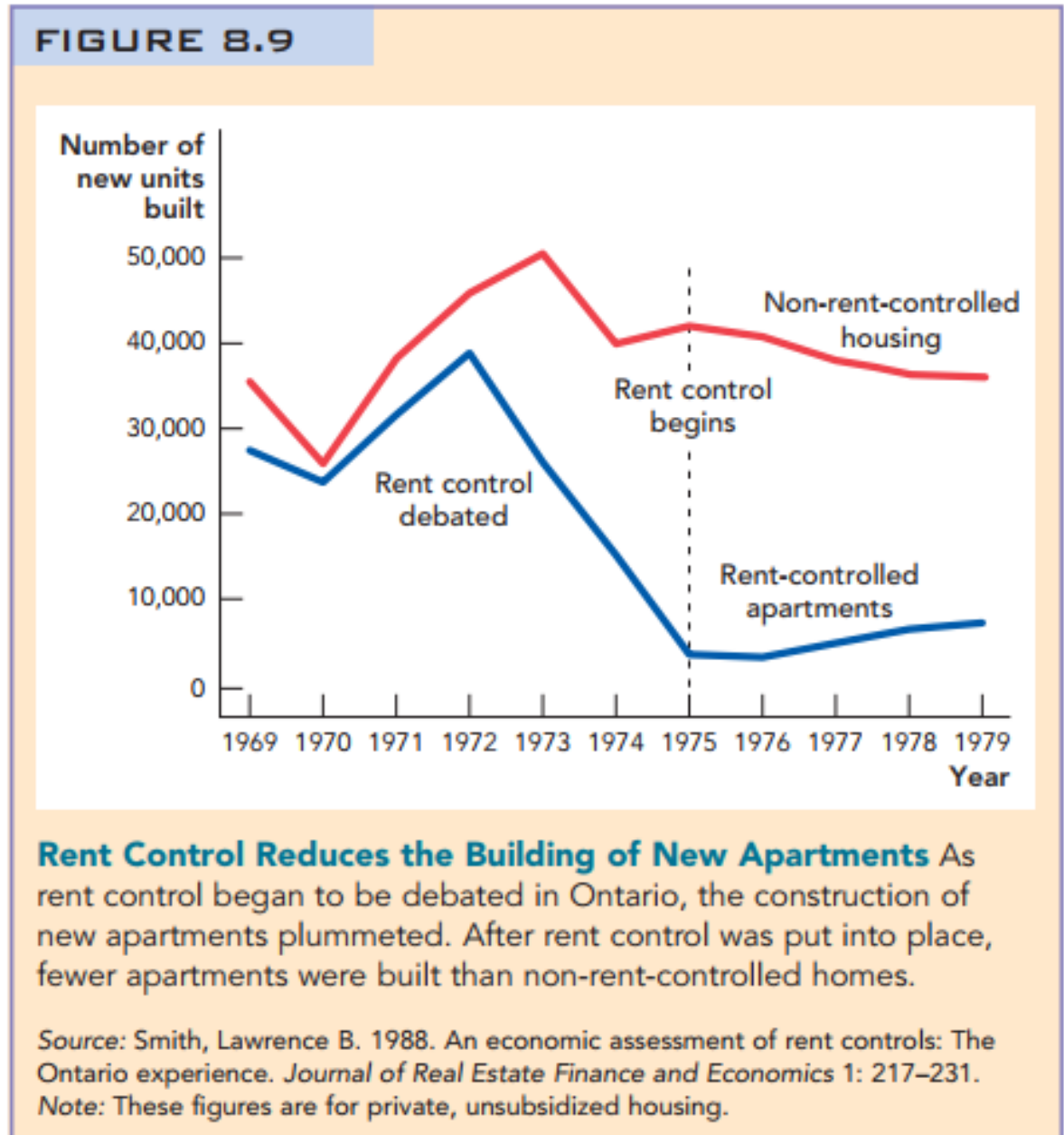
Rent Control Creates Larger Shortages in the Long Run than in the Short Run A rent control below the equilibrium price generates a shortage. The short-run shortage is small since the apartment units are already built. In the long run, fewer new units are built and old apartments are torn down or turned into condominiums so the long-run shortage is much greater.

Rent control: Long run vs short run

- Rent controls begin with a “rent freeze,” which prohibits the owners of apartments from raising rents.
 - Apartments are durable goods. Rent controls forces the owners of apartment buildings to absorb the lower price.
- Short-run supply curve for apartments is inelastic.
 - Thus, even though the rent freeze may result in rents well below the market equilibrium level, there is only a small reduction in the quantity of apartments supplied in the short run.
- Long run supply is elastic.
 - Results in fewer new apartment units being built and older units turned into condominiums or torn down to make way for parking garages or other higher-paying ventures.
- The shortage grows over time from the short-run shortage to the long-run shortage.

Rent control: Real life example

- In the early 1970s, for example, rent control was debated in Ontario, Canada, and put into place in 1975. In the five years before controls were put into place, developers built an average of 27,999 new apartments per year.
- In the five years after controls were put into place, developers built only 5,512 apartments per year. Figure 8.9 graphs the number of new apartment starts and the number of new house starts per year from 1969 to 1979.

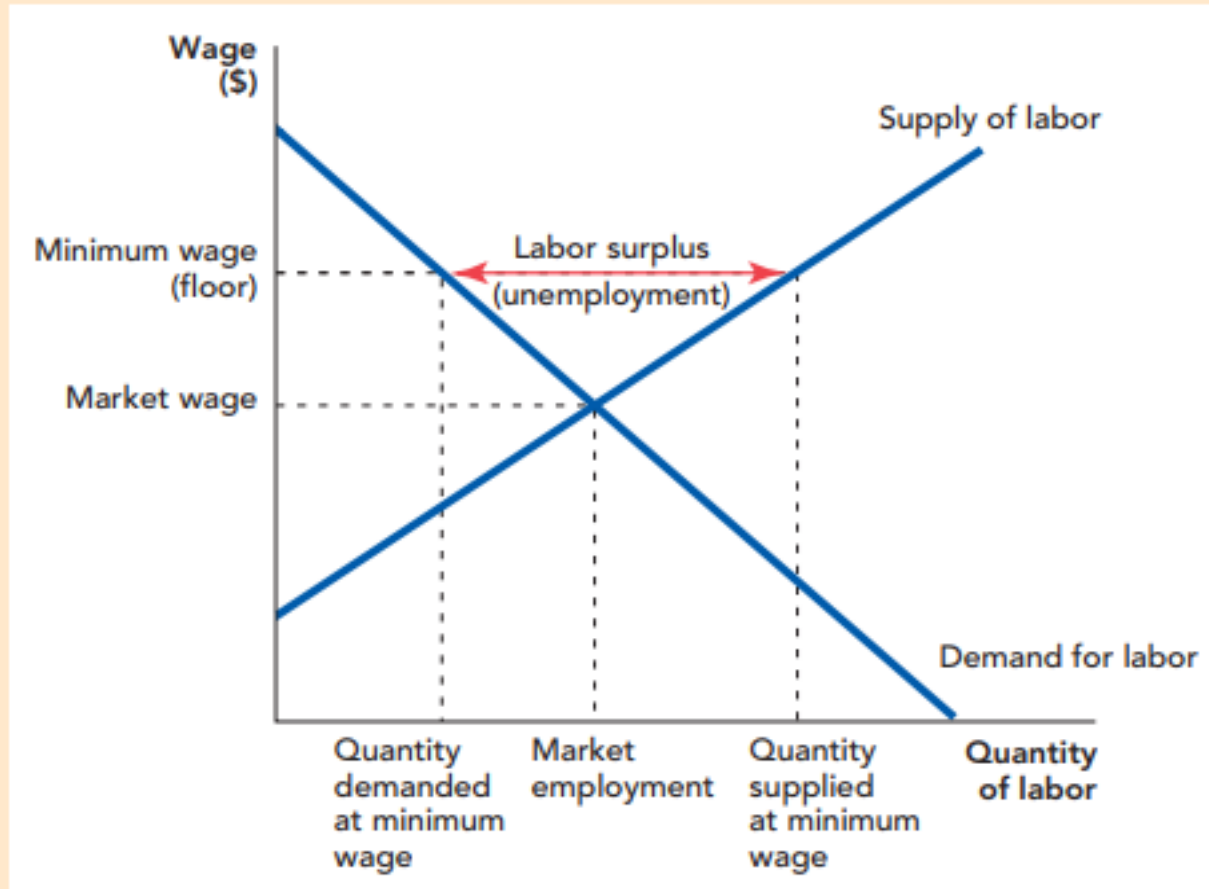


Price Floors

- **Price Floor** is a minimum price that is allowed by law.
- Most well known and debated *price floor* is the *minimum wage*.
 - People in favor of a **higher** minimum wage believe that higher minimum wage will help lift many Americans out of **poverty**.
 - People opposed to a **higher** minimum wage believe that the higher minimum wage will lead to a large increase in **unemployment**

Price Floor: Minimum Wage

FIGURE 8.10

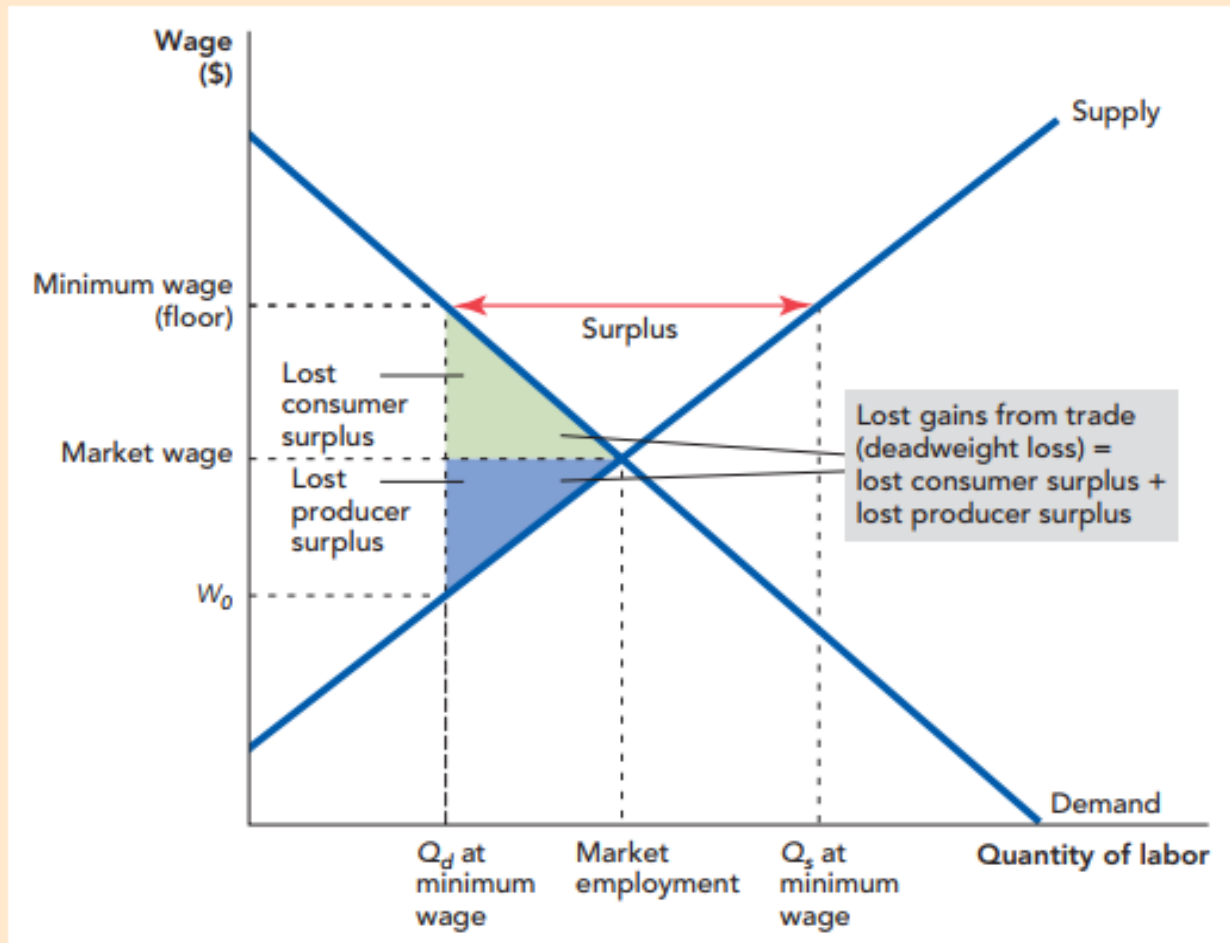


A Price Floor Creates a Surplus (Minimum Wages Create Unemployment)

At the minimum wage, the quantity demanded of labor falls below the market employment level and the quantity supplied rises, creating a surplus of labor.

Price Floor: Minimum Wage

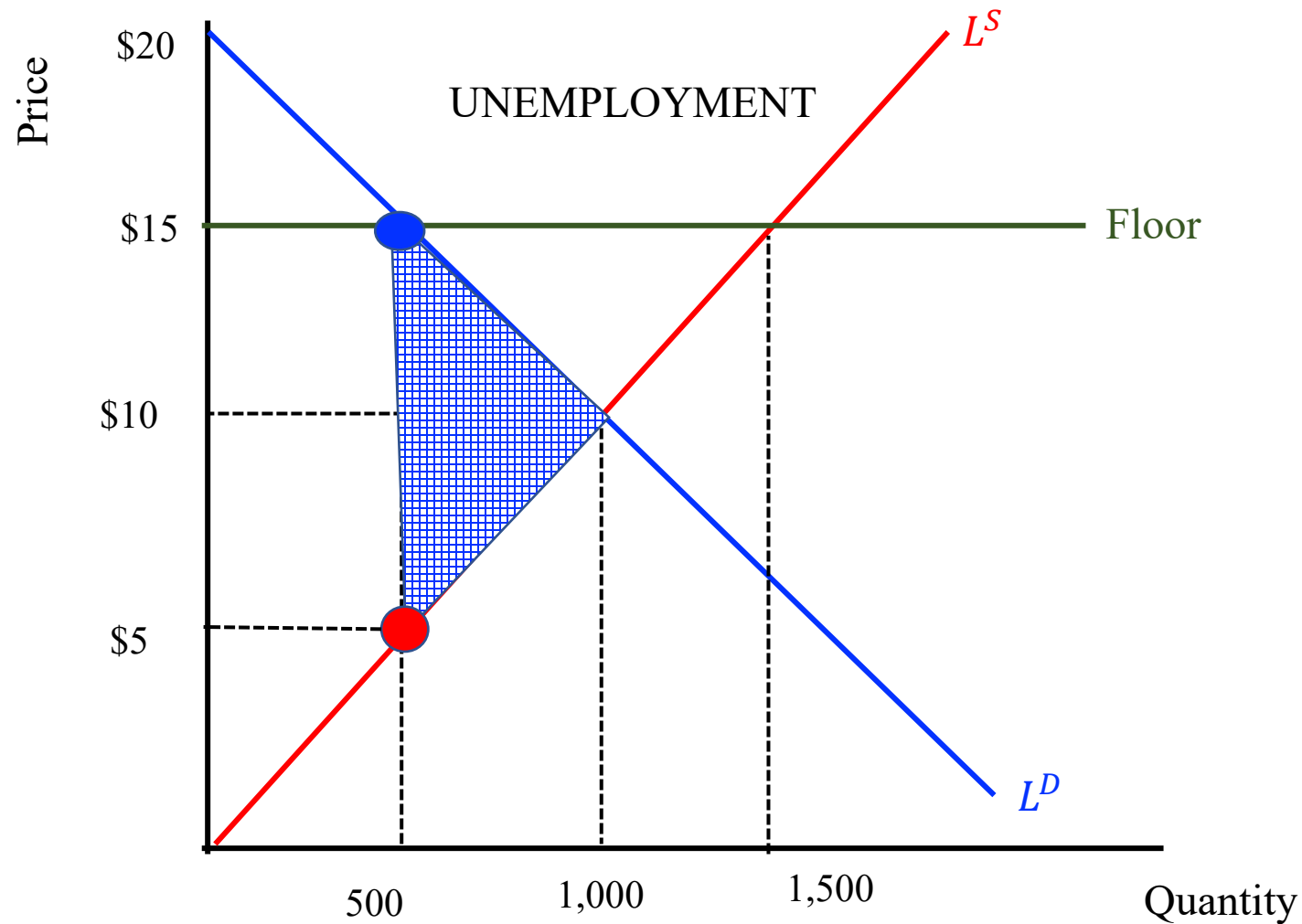
FIGURE 8.11



A Price Floor Reduces the Gains from Trade

At the minimum wage, employers are willing to hire more workers at just less than the minimum wage and workers are willing to work additional hours for just more than W_0 . Although mutually profitable, these trades are illegal. If all mutually profitable trades were legal, the gains from trade would increase by the green plus blue triangles.

Minimum wage: an example

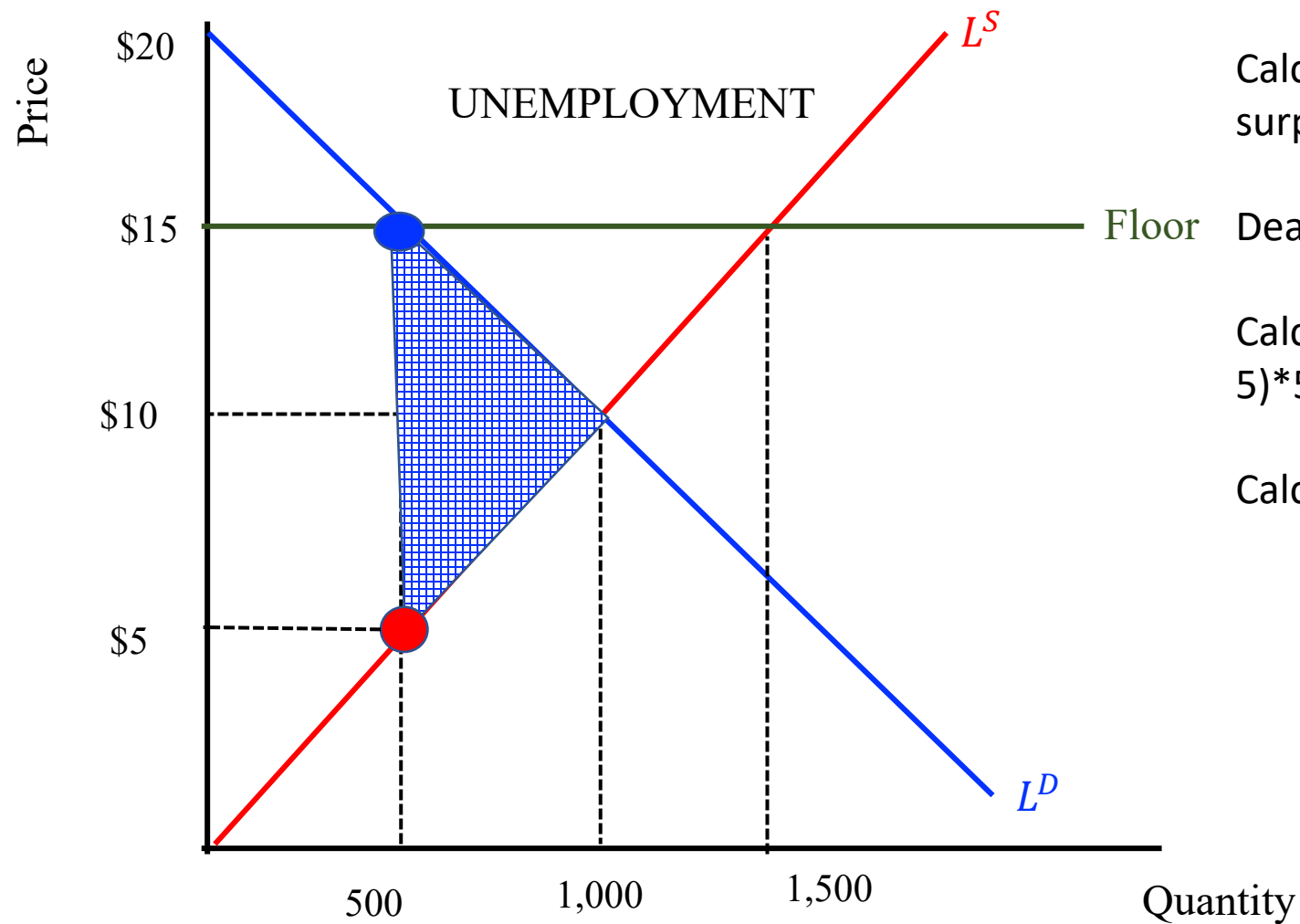


Calculate loss in producer and consumer surplus (aka deadweight loss).

Calculate producer surplus

Calculate consumer surplus

Minimum wage: an example



Calculate loss in producer and consumer surplus (aka deadweight loss).

$$\text{Deadweight loss} = 0.5 * (15-5) * (1000-500)$$

$$\text{Calculate producer surplus} = 0.5 * (5) * 500 + (15-5) * 500$$

$$\text{Calculate consumer surplus} = 0.5 * (20-15) * 500$$

Minimum wage and Employment

When the minimum wage increases, how do firms respond.

- I. They **reduce employment** of minimum wage workers.
 - Keep best workers and have them work more efficiently. Buy equipment (kiosks and other machines to automate production) and have fewer workers.
- II. Alter employment through **changes in shifts**:
 - Change hours of operation, or
 - Have fewer workers during off peak times.
- III. They **raise the price** of the goods they sell in order to keep profit margins the same.
 - However, recall higher output prices will reduce the quantity demanded and you end up with lower employment.
- IV. They keep prices the same and keep the same number of workers and pay them the higher minimum wage – **reduces profit margins**.
 - In the longer run, entry into this industry looks less attractive for entrepreneurs and the industries shrink in size and less employment.

Practice Questions

Figure A

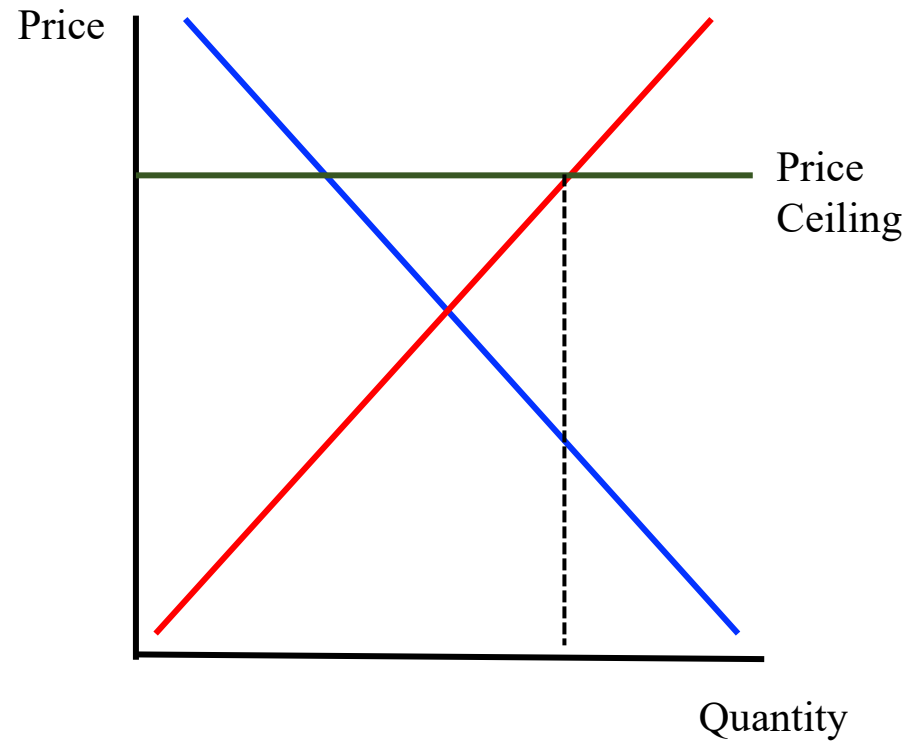
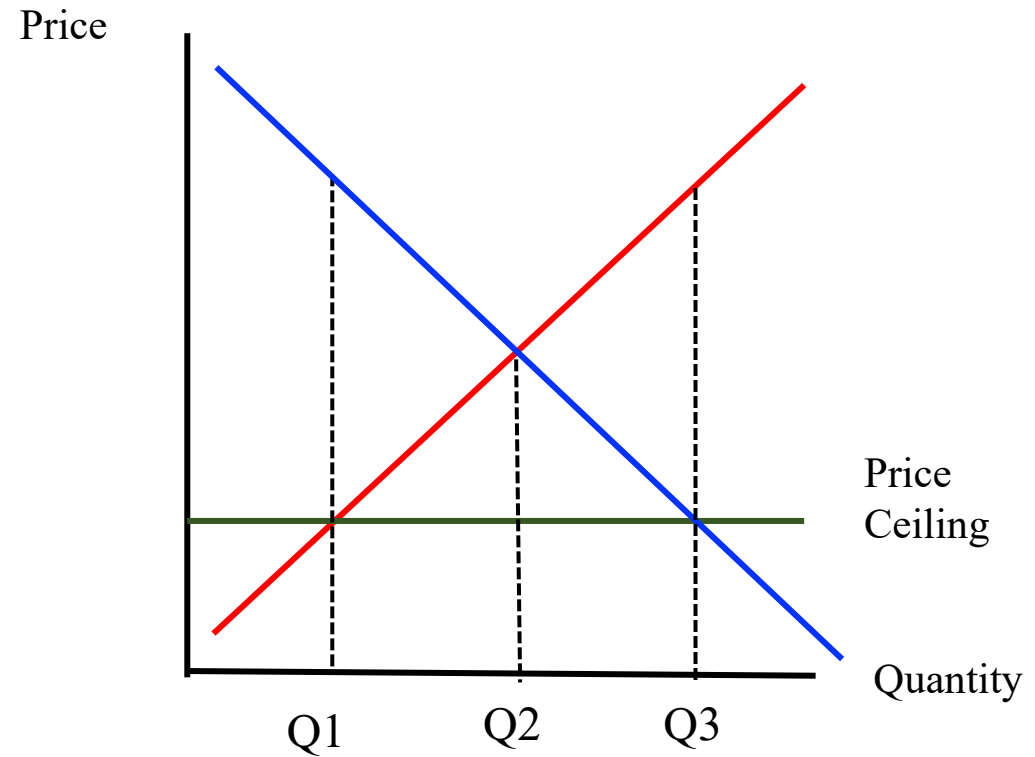


Figure B



Practice Questions

If each of the two markets shown above are subject to price ceilings—i.e., maximum allowed prices—we would expect (*HINT: is it binding?*)

- a. a surplus of product A and a shortage of product B.
- b. a surplus of product B and a shortage of product A.
- c. a shortage of both product A and product B.
- d. a surplus of only product A.
- e. a shortage of only product B.

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.

Practice Questions

In the market for product B,

- a. there would be a shortage equal to Q_3 minus Q_1 .
- b. there would be a surplus equal to Q_3 minus Q_1 .
- c. there would be a shortage equal to Q_2 minus Q_1 .
- d. there would be a surplus equal to Q_3 minus Q_2 .
- e. there would be a shortage equal to Q_3 minus Q_2 .

Practice Questions

In the market for product B,

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- c. there would be a shortage equal to Q_2 minus Q_1 .
- d. there would be a surplus equal to Q_3 minus Q_2 .
- e. there would be a shortage equal to Q_3 minus Q_2 .

Credits to @grebcomics, Marjane Satrapi and Cowen and Tabarrok
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