

HW#6 Due March 4, 2021

9. At Fenway Park, home of the Boston Red Sox, seating is limited to about 38,000. Hence, the number of tickets issued is fixed at that figure. Seeing a golden opportunity to raise revenue, the City of Boston levies a per ticket tax of \$5 to be paid by the ticket buyer. Boston sports fans, a famously civic-minded lot, dutifully send in the \$5 per ticket. Draw a well-labeled graph showing the impact of the tax. On whom does the tax burden fall—the team's owners, the fans, or both? Why?
10. A market is described by the following supply and demand curves:

$$Q^S = 2P$$

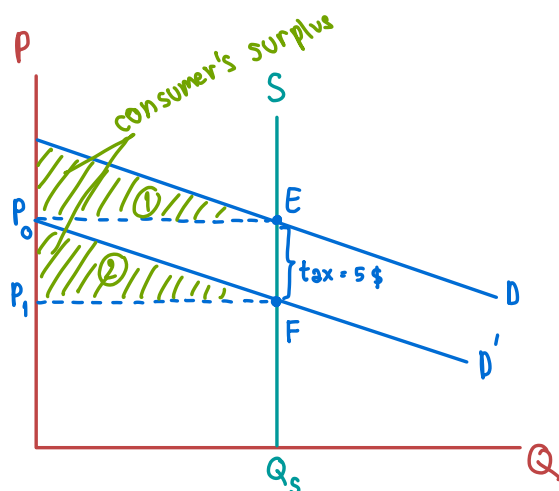
$$Q^D = 300 - P$$

- Solve for the equilibrium price and quantity.
- If the government imposes a price ceiling of \$90, does a shortage or surplus (or neither) develop? What are the price, quantity supplied, quantity demanded, and size of the shortage or surplus?
- If the government imposes a price floor of \$90, does a shortage or surplus (or neither) develop? What are the price, quantity supplied, quantity demanded, and size of the shortage or surplus?
- Instead of a price control, the government levies a tax on producers of \$30. As a result, the new supply curve is:

$$Q^S = 2(P - 30).$$

Does a shortage or surplus (or neither) develop? What are the price, quantity supplied, quantity demanded, and size of the shortage or surplus?

9.



The entire tax burden falls on the team's owners because the supply curve is inelastic, while the quantity demand decreases. If the seller want to sell this amount of tickets ($Q_s = 38,000$), the seller need to reduce the price.

(10)

$$a.) Q_s = 2P \Rightarrow P = \frac{Q_s}{2}$$

$$Q_D = 300 - P \Rightarrow P = 300 - Q_D$$

$$\begin{aligned} Q_s &= Q_D \\ 2P &= 300 - P \\ 2P + P &= 300 \\ 3P &= 300 \\ P &= 100_{\$} \end{aligned}$$

Find Q_s and Q_D

$$\begin{aligned} Q_s &= 2P \\ &= 2(100) \\ &= 200_{\#} \end{aligned}$$

$$\begin{aligned} Q_D &= 300 - P \\ &= 300 - 100 \\ &= 200_{\#} \end{aligned}$$

$\therefore$ Equilibrium price is \$100 and quantity is 200.

$$b.) P_{\max} = 90$$

$$\begin{aligned} Q_s &= 2P \\ &= 2(90) \\ &= 180 \end{aligned}$$

$$\begin{aligned} \text{and } Q_D &= 300 - P \\ &= 300 - 90 \\ &= 210 \end{aligned}$$

$\therefore Q_D > Q_s$ (Excess demand)

shortage in quantified supply : $210 - 180 = 30$

$\therefore$ If the government imposes a price ceiling of \$90,
The shortage in quantified supply is 30 units.

$$c.) P_{\min} = 90 \text{ (Equilibrium price is \$100)}$$

In this case, price floor that the government set is not effective because the equilibrium price in the market right now is higher than price floor. Therefore, this price floor doesn't help to increase the market price.

$\therefore$ The Equilibrium price is still the same (\$100),

Neither a shortage nor surplus develop. ($Q_s = Q_D = 200$)

$$\begin{aligned} d.) Q_s &= 2(P - 30) \\ Q_D &= 300 - P \end{aligned}$$

At new Equilibrium

$$\begin{aligned} Q_s &= Q_D \\ 2(P - 30) &= 300 - P \\ 2P - 60 &= 300 - P \\ 3P &= 360 \\ P &= 120_{\$} \end{aligned}$$

$$\begin{aligned} Q_s &= 2(120 - 30) \\ &= 2(90) \\ &= 180_{\#} \\ Q_D &= 300 - P \\ &= 180_{\#} \end{aligned}$$

$\therefore$ Neither a shortage nor surplus develop.