

## 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:

$$Q^S = 2P$$

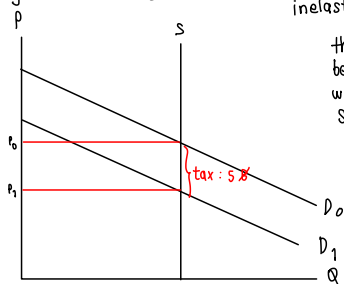
$$Q^D = 300 - P$$

- 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. given that  $Q_S = 38,000$  (extreme case that supply is perfectly inelastic)



the entire tax burden is on seller because the seller have to decrease, without changing  $Q_S$  in order to sell the ticket for the same amount ( $Q_S = 38,000$ )

10.  $Q_S = 2P \rightarrow P = \frac{Q_S}{2}$   
 $Q_D = 300 - P \rightarrow P = 300 - Q_D$

- a. equilibrium price and quantity.

$$2P = 300 - P$$

$$3P = 300$$

$$P = 100$$

$$\text{equilibrium price} = 100$$

$$\frac{Q}{2} = 300 - Q$$

$$\frac{Q}{2} + \frac{2Q}{2} = 300$$

$$\frac{3Q}{2} = 300$$

$$Q = \frac{600 \cdot 2}{3}$$

$$Q = 200$$

$$\text{equilibrium quantity} = 200$$

- b. price ceiling of \$90 ( $P_{\max}$ ) is below equilibrium

$$Q_D = 300 - P$$

$$Q_D = 300 - 90$$

$$Q_D = 210$$

$$Q_S = 2P$$

$$Q_S = 2(90)$$

$$Q_S = 180$$

$$\left\{ \begin{array}{l} Q_D - Q_S > 0 \\ = \text{excess demand} \end{array} \right.$$

(Shortage in Quantity supply)

$$210 - 180 = 30 \text{ units}$$

- c. price floor is \$90 ( $P_{\min}$ ), when equilibrium price is 100 ( $P_0$ ), therefore the price floor is not binding in this case because the purpose of price floor is to increase the market price, if we set price floor below equilibrium price, the market will continue its mechanism, at price = 100  
 Neither surplus or shortage would develop  $\left. \begin{array}{l} Q_D \\ Q_S \end{array} \right\} = 200$

- d. government receives tax on producer \$30

$$Q_S = L(P - 30), \quad Q_D = 300 - P$$

$$\text{at E new, } Q_S = Q_D$$

$$2P - 60 = 300 - P$$

$$3P = 360$$

$$P = 120$$

$$Q = 300 - 120$$

$$Q = 180$$

$$Q = 180$$

$$\text{new equilibrium point} = (180, 120)$$

therefore, neither surplus nor shortage would develop.