

HW#8 Due March 1, 2022

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:

$$Q^S = 2P$$

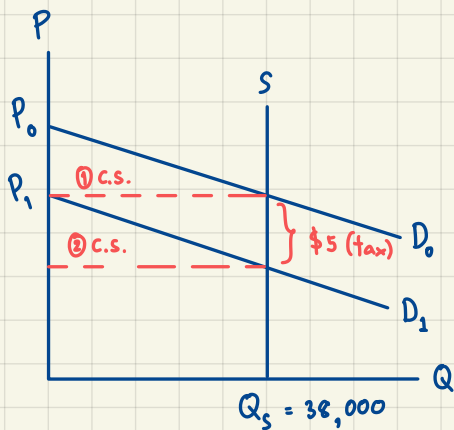
$$Q^D = 300 - P$$

- 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) $Q_s = 38,000$



Supply curve is perfectly inelastic

the entire tax burden $\Rightarrow$ on the supplier

$\rightarrow$ the supplier has to reduce the price (without changing Q_s)

so that they can sell the tickets for the same amount (38,000)

Demand curve $\Rightarrow$ Shift down

$\rightarrow$ need to pay \$5 more tax per a ticket

$$\begin{aligned} 10. \quad Q_s &= 2P & \longrightarrow & P = \frac{Q_s}{2} \\ Q_D &= 300 - P & \longrightarrow & P = 300 - Q_D \end{aligned}$$

a) Equilibrium price and quantity

$\longrightarrow P$ $Q_s = Q_D$ $2P = 300 - P$ $3P = 300$ $P = 100$	$\longrightarrow Q$ $Q_s = 2P$ $Q_s = 2(100)$ $Q_s = 200$	$\left. \begin{array}{l} \\ \\ \end{array} \right\} \text{or} \left\{ \begin{array}{l} Q_D = 300 - P \\ Q_D = 300 - 100 \\ Q_D = 200 \end{array} \right.$
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b) Price ceiling of \$90 (P_{max}) is below Eq. price

$\longrightarrow Q_D$ $Q_D = 300 - P$ $Q_D = 300 - 90$ $Q_D = 210$	$\longrightarrow Q_s$ $Q_s = 2P$ $Q_s = 2(90)$ $Q_s = 180$
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$\therefore Q_D > Q_s$ (excess demand)

In conclusion, there is a shortage in $Q_s \Rightarrow 210 - 180 = 30$ units.

C) $P_{\min} = \$90$ (When equilibrium is $\$100$ (P_0))

→ the price floor is ineffective, so the mechanism keeps going

→ the aim of price floor = to increase the market place

↳ if we set the price floor belows equilibrium price → continue mechanism

At price = 100 → Neither surplus nor shortage would develop

($Q_D, Q_S = 200$)

D) Government levies a tax on producers $\$30$

→ $Q_S = 2(P - 30)$, $Q_D = 300 - P$

At $E_{\text{new}} = Q_S = Q_D$

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

$$3P = 360$$

$$P = 120$$

$$Q_D = 300 - 120$$

$$Q_D = 180$$

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

In conclusion, neither surplus nor shortage would develop