02.10. Industrial Organisation - Adél Seres

Week 1 - Individual Assignment

$Q_S = 400p - 100$ $Q_D = 1100 - 200p$
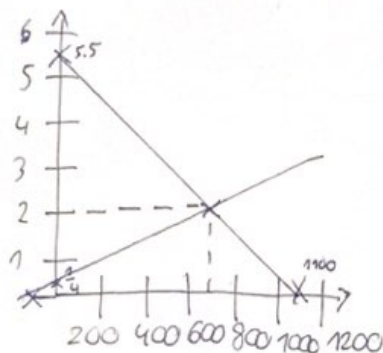
① equilibrium

$$\begin{cases} 400p - 100 = 1100 - 200p \;\; |+100\,|+200p \\ 600p = 1200 \;\; |:600 \end{cases}$$

$p = 2 \text{€}$

quantity

$400 \cdot 2 - 100 = 700$

producer surplus: $\dfrac{\frac{7}{4} \cdot 700}{2} = 612,5$

consumer surplus: $\dfrac{3.5 \cdot 700}{2} = 1225$

② ③
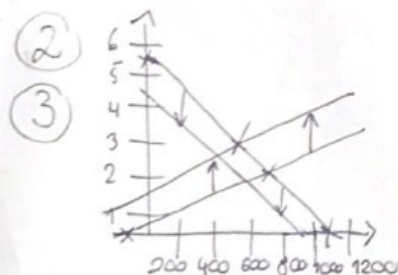
Taxing the demand side: $200 \cdot 4.5 = 900$

$\rightarrow 900 - 200p = 400p - 100$ $p = 1.667 \text{€}$

$900 - 200 \cdot 1.667 = 566.67$

consumer surplus: $\dfrac{4.5 - 1.667}{2} \cdot 566.67 = 803,156$

producer surplus: $\dfrac{1.667 - 0.25}{2} \cdot 566.67 = 401,29$

Deadweight loss: $\dfrac{700 - 566.7}{2} \; 66.6$

Taxing the supply side:

$Q_S = 400 \cdot (p - 1) - 100 = 400p - 500$

$400p - 500 = 1100 - 200p \implies p = 2,667 \text{€}$ quantity: $566,67 \text{€}$

Consumer Surplus: $\dfrac{2,834 \cdot 566.67}{2} = 802,78$

Producer surplus: $\dfrac{566.67 - 1,4167}{2} = 401,39$

Deadweight loss: $\dfrac{0,667 \cdot 133,34}{2} = 44,44$