

經濟學 班級 10/26/21

Week 15

工作的本質在於集中力。 Walter Brueggemann

$$\begin{aligned} \text{A) } 60 - 2q &= 30 \quad q = 15 \quad p = 45 \quad \pi = 45 \times 15 - 30 \times 15 = 225 \\ CS &= \frac{15 \times 15}{2} = 112.5 \quad TS = 225 + 112.5 = 337.5 \\ DWL &= 112.5 \end{aligned}$$

$$\begin{aligned} \text{B) } 60 - q &= 30 \Rightarrow q = 30 \quad \pi = \frac{30 \times 30}{2} = 450 \\ CS &= 0 \quad TS = 0 + 450 = 450 \quad DWL = 0 \end{aligned}$$

$$\begin{aligned} \text{C) } \pi &= P(q_1)q_1 + P(q_2)(q_2 - q_1) - TC(q_2) = (60 - q_1)q_1 \\ &+ (60 - q_1)(q_2 - q_1) - 30q_2 = q_1^2 - q_2^2 + 30q_2 + q_1q_2 \\ -\frac{1}{2} \pi \quad -2q_1 + q_2 &= 0 \quad -2q_2 + 30 + q_1 = 0 \quad q_1 = 10 \quad q_2 = 20 \\ p_1 &= 50 \quad p_2 = 40 \quad \pi = 50 \times 10 + 40 \times (20 - 10) - 30 \times 20 = 300 \\ CS &= \frac{(10 \times 50)}{2} + \frac{(10 \times 10)}{2} = 100 \quad TS = 100 + 300 = 400 \\ DWL &= 450 - 400 = 50 \end{aligned}$$

$$\begin{aligned} \text{D) } \pi &= P(q_1)q_1 + P(q_2)(q_2 - q_1) + P(q_3)(q_3 - q_2) - TC(q_3) \\ &= (60 - q_1)q_1 + (60 - q_2)(q_2 - q_1) + (60 - q_3)(q_3 - q_2) - 30q_3 \\ &= q_1^2 - q_2^2 - q_3^2 + 30q_3 + q_1q_2 \\ -\frac{1}{2} \pi \quad -2q_1 + q_2 &= 0 \quad -2q_2 + q_1 + q_3 = 0 \quad -2q_3 + 30 + q_2 = 0 \\ q_1 &= 7.5 \quad q_2 = 15 \quad q_3 = 22.5 \end{aligned}$$

對應價格 $p_1 = 52.5$ $p_2 = 45$ $p_3 = 37.5$

$$\begin{aligned} \Rightarrow \pi &= 52.5 \times 7.5 + 45 \times (15 - 7.5) + 37.5 \times (22.5 - 15) - 30 \times 22.5 = 337.5 \\ CS &= 84.375 \quad TS = 421.875 \\ DWL &= 28.125 \end{aligned}$$