

week 5

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隨 9 $A \Rightarrow q = \min\{\frac{L}{2}, \frac{K}{4}\}$
 $B \Rightarrow q = \min\{\frac{L}{4}, \frac{K}{2}\}, w=1, r=2$

權利金 = 40
 權利金 = 100

總成本 = 生產成本 + 權利金成本

生產成本 = LTC = $wL + rK = L + 2K$

成本極小化

(A) ① $q = \frac{L}{2} = \frac{K}{4} \Rightarrow L^* = 2q, K^* = 4q$

$C = 1 \times 2q + 2 \times 4q = 10q, LTC_A = 10q + 40$

② $q = \frac{L}{4} = \frac{K}{2} \Rightarrow L^* = 4q, K^* = 2q$

$C = 1 \times 4q + 2 \times 2q = 8q, LTC_B = 8q + 100$

(B) 生產 20

$q = 20, TCA = 240, TCB = 260, \textcircled{A}$

(C) 生產 40

$q = 40, TCA = 440, TCB = 420, \textcircled{B}$

(D) 產量低於? 買 A

$TCA < TCB \quad 10q + 40 < 8q + 100$
 $2q < 60 \quad q < 30 \#$

隨 11 $q = 10L^{\frac{1}{2}}K^{\frac{1}{2}}, w=r=10, K$ 固定 K_0

$STC = wL + rK$

成本極小化

(A) STC, AC, MC

$q = 10L^{\frac{1}{2}}K^{\frac{1}{2}} \Rightarrow L^* = \frac{q^2}{10K_0} + 10K_0 \#$

$STC = 10 \times \frac{q^2}{10K_0} + 10K_0 = \frac{q^2}{10K_0} + 10K_0 \#$

$SAC = \frac{q}{10K_0} + \frac{10K_0}{q} \#$

$SMC = \frac{dSTC}{dq} = \frac{q}{5K_0} \#$

(B) 反推 STC

$\frac{dSTC}{dK} = \frac{-q^2}{10K^2} + 10 = 0 \Rightarrow K = \frac{q}{10}$

(找大與小, 所以做微分)

$STC = q + q = 2q \#$