

Week 5

★ 10/260036 廣興有芹

隨 9  $A \Rightarrow q = \min \left\{ \frac{L}{2}, \frac{K}{4} \right\}$

$B \Rightarrow q = \min \left\{ \frac{L}{4}, \frac{K}{2} \right\}$

$w=1, r=2$

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.

$TCA < TCB \quad 10q + 40 < 8q + 100$

$2q < 60$

$q < 30 \#$

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

#  $STC = wL + rK$

# 成本極小化

(A)  $STC, AC, MC$

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

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

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

$SMC = \frac{dSTC}{dq} = \frac{2q}{K_0} \#$

(B) 反推  $STC$

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

(括弧下取最小, 所以做微分)

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