T5、T6、T8、T9、/十一加油

Week 3

T5: (a): $\because F(K,L)=K^{\frac{1}{2}}L^{\frac{1}{2}}$

$\therefore MP_L=\frac{dQ}{dL}=\frac{1}{2K}$

$MP_K=\frac{dQ}{dK}=\frac{1}{2L}$

$\therefore MRTS=\frac{MP_L}{MP_K}=\frac{L}{K}$

$\therefore$ 0分. $\frac{\frac{dK}{K}}{\frac{dMRTS}{MRTS}}=\frac{\frac{1}{2}K^{-\frac{3}{2}}L^{\frac{1}{2}}}{\frac{K(K-L)}{L}}=\frac{K^{-\frac{5}{2}}L^{\frac{3}{2}}}{2K-2L}=1$

(b): $F(K,L)=2K+L$

$\therefore MP_L=\frac{dQ}{dL}=\frac{3}{2K+1}$

$MP_K=\frac{3}{2}$

$\therefore MRTS=\frac{MP_L}{MP_K}=\frac{2}{2K+1}$

$\therefore 0=\frac{\frac{dK}{K}}{\frac{dMRTS}{MRTS}}=-\frac{2K+1}{K}=1$

T8:

(1): $\because Q=3K+2L$

$\because f(\alpha L,\alpha K)$

$=2(\alpha L)+3(\alpha K)$

$=\alpha(3K+2L)$

$=\alpha Q$ ✓

$\therefore$ 规模报酬固定 $\Rightarrow$ (1)对

(2): $MP_K=\frac{dQ}{dK}=\frac{5}{3}$ 固定不变

$MP_L=\frac{dQ}{dL}=\frac{5}{2}$ 固定不变

$\therefore$ (2)说法错误

(3): $MRTS=\frac{MP_L}{MP_K}=\frac{3}{2}$

$\therefore$ 固定 ✓

$\therefore$ (3)说法正确

T9:

(1): $Q=(aL^{\alpha}+K^{\alpha})^{\beta}$

$=L^{\alpha\beta}+K^{\alpha\beta}$

$\because f(\alpha L,\alpha K)$

$\Rightarrow \alpha L^{\alpha\beta}+\alpha K^{\alpha\beta}$

$\Rightarrow \alpha(L^{\alpha\beta}+K^{\alpha\beta})$

$\therefore$ 固定

(2): $\ln Q=5+0.5\ln L+0.2\ln K$

$\Rightarrow$ 求同时微分 $\Rightarrow Q=\frac{KL}{0.5K+0.2L}$

$\Rightarrow f(\alpha L,\alpha K)$

$\Rightarrow \frac{\alpha K\alpha L}{0.5\alpha K+0.2\alpha L}$

$=\alpha(\frac{KL}{0.5K+0.2L})$

$\therefore$ 固定

(3): $f(\alpha L,\alpha K)$

$\Rightarrow (\min(a\alpha L,b\alpha K))^{\alpha}$

$\Rightarrow (\alpha\min(aL,bK))^{\alpha}$

$\Rightarrow (\alpha Q)^{\alpha}$

$\therefore$ 递增?