

Q4A

$$g\left(\frac{Y}{L}\right) = g\left(\frac{K}{L}\right)$$

$$g(Y) - g(L) = g(K) - g(L)$$

$$g(Y) = g(K)$$

$$g(K) - g(Y) = 0$$

$$g\left(\frac{K}{Y}\right) = 0$$

if $g\left(\frac{K}{Y}\right) = 0$
 \Downarrow
 then $\frac{K}{Y}$ constant
 in BGE

Q4B

$$g\left(\frac{Y}{L}\right) = g\left(\frac{K}{L}\right)$$

BGE condition

$$Y = K^\alpha (L \cdot E)^{1-\alpha}$$

Cobb-Douglas produc. func.

$\rightarrow g\left(\frac{K}{L}\right) = g\left(\frac{Y}{L}\right)$ in equili.

$$g\left(\frac{K}{L}\right) = g\left[\left(\frac{K}{L}\right)^\alpha E^{(1-\alpha)}\right]$$

$$g\left(\frac{K}{L}\right) = g\left[\left(\frac{K}{L}\right)^\alpha\right] + g[E^{1-\alpha}]$$

$$g\left(\frac{K}{L}\right) = \alpha \cdot g\left(\frac{K}{L}\right) + (1-\alpha) \cdot g(E)$$

$$g\left(\frac{K}{L}\right) - \alpha \cdot g\left(\frac{K}{L}\right) = (1-\alpha) g(E)$$

$$(1-\alpha) g\left(\frac{K}{L}\right) = (1-\alpha) g(E)$$

$$g\left(\frac{K}{L}\right) = g(E)$$

given $g\left(\frac{K}{L}\right) = g\left(\frac{Y}{L}\right)$, $g\left(\frac{Y}{L}\right) = g(E)$