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Solow Model Equations

(I) Solow with population growth and no technological change.
(population = # of workers)

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

(2) $\hat{L} = n$, $S = s Y$, $C = (1 - s) Y$

(3) $\Delta K = s Y - \delta K$

(4) $\hat{K} = s (Y / K) - \delta$

Y= output, K= capital, L= labor

Define new variables :
$y = Y/L$ (output per worker) , $k = K/L$ (capital per worker)

(5) $\Delta k = s y - (\delta + n) k$

(II) Solow with technological change and population growth
(population = # of workers)

(1) $Y = K^{\alpha} (AL)^{1-\alpha}$

(2) $\hat{L} = n$, $\hat{A} = g$ $S = s Y$, $C = (1 - s) Y$

(3) $\Delta K = s Y - \delta K$

Define new variables :
$\tilde{k} = K / L A$ (capital per effective unit of labor), $\tilde{y} = Y / L A$ (output per effective unit of labor)

(4) $\Delta \tilde{k} = s \tilde{y} - (\delta + n + g) \tilde{k}$