Chapter 3: Growth accounting

Assume:

$Y_1 = 1000$	$K_1 = 2500$	$LF_1 = 500$
$Y_2 = 1300$	$K_2 = 3250$	$LF_2 = 575$
$g = 30\%$	$gk = 30\%$	$gL = 15\%$

A) Assume 30% of national income goes to capital, and 70% goes to labour. Calculate the residual.

$0.3 = a + 0.3 \times 0.3 + 0.7 \times 0.15$

$g = a + wk \times gk + wL \times gL$

a = Solow model residential

a measure of TFP.

B) if wk = 0.5 and wL = 0.5, calculate the residual.

$wk = 0.5 \quad wL = 0.5$

$\Rightarrow \quad a = 0.75$

C) if wk = 0.5 and wL = 0.5, and a = 0.105, calculate g

$g = 0.33.$

Chapter 3, Solow Model Example

Given: PF = Y/L = 3 (K/L) $^{0.5}$

S (MPS) = 0.30
d = 0.10
n = 0.05 (pop growth = LF growth)

A) Solve for [SS equil] => intersection of saving function and capital widening line
Steady state

b) The savings rate increases to 0.40

Saving function =

c) The pop growth rate increases to 0.08

a) $s \times (Y/L) = (n+d) \cdot K/L$
pop growth rate, depreciate rate

$0.3 \times 3(\frac{K}{L})^{0.5} = (0.05+0.1)\ K/L$

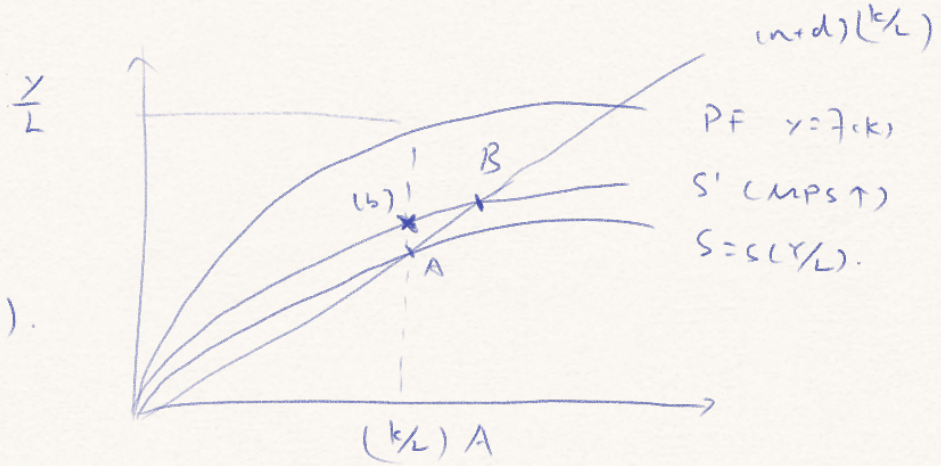
$\frac{0.9}{0.15} = (K/L)^{0.5}$

$K/L = \ldots$

$Y/L = 3(K/L)^{0.5}$

$= \ldots$

b)



A (36, 18).

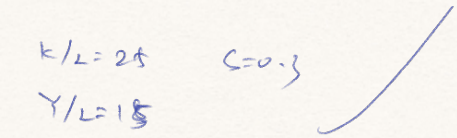
At (b): $S > n+d$ => $K/L \uparrow$

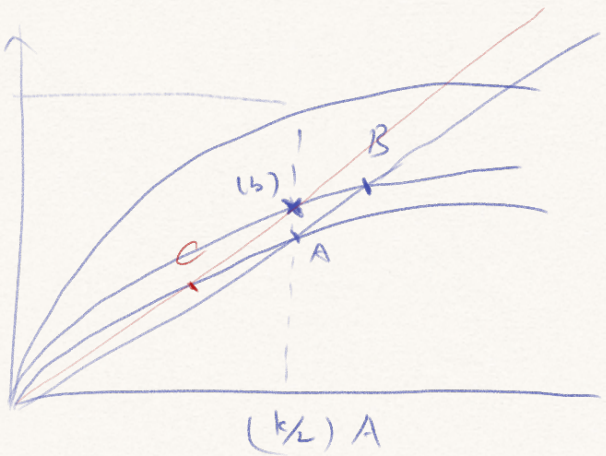
=> $Y/L \uparrow$

B (64, 24)

(c) $k/L = 2$ $c = 0.3$

$Y/L = 1$





economy would affect saving function.

$s \uparrow \Rightarrow s > n+d$

$\Rightarrow k/L \uparrow$

$\Rightarrow Y/L \uparrow$

$n \uparrow \Rightarrow s < n+d$

$k/L \downarrow$

$Y/L \downarrow$

LR growth rate ↑

since n ↑

$s \gtrless n+d$

k/L ?

Y/L ?

combination moving opposite direction

leave other ambiguous to infer