Advanced Macroeconomics, Problem Set 3

From Willi we know that:

$\bar{Y} = 1$

$\overline{G^B} = 0{,}2\bar{Y}$

$\overline{I^B} = 0{,}02\bar{Y}$

$\overline{TR} = 0$

$\bar{w} = 2$

$\bar{N} = \frac{1}{3}$

He also thinks that public capital productivity is lower than the capital share in production; $\eta < \alpha$

and $\rho_z = \rho_{G^B} = \rho_{I^B} = \rho_{\tau} = 0{,}75$

and all shock standard errors are equal to $0{,}01$

The following parameters are set as

$\beta = 0{,}99$, $\delta = 0{,}03$, $\eta = 0{,}05$

It follows that:

$w \cdot N = (1-\alpha) \cdot Y$ $\quad$ $rK = \alpha Y$ $\quad$ $0{,}0514 \cdot K = \frac{1}{3}$

$2 \cdot \frac{1}{3} = 1-\alpha$ $\quad$ $rK = \frac{1}{3}$ $\quad$ $\underline{\underline{K = 6{,}485}}$

$\underline{\underline{\alpha = \frac{1}{3}}}$ $\quad$ $Y = z \cdot K^{B^\eta} \cdot K^{\alpha} \cdot N^{1-\alpha} \rightarrow \underline{\underline{z = 1{,}1383}}$

$G^B + I^B + TR = \tau \cdot (wN + rK)$ $\quad$ $1 = \beta \, 1 \left[(1-\delta) + (1-\tau) \cdot r\right]$

$\underline{\underline{0{,}22 = \tau}}$ $\quad$ $\frac{1}{\beta} = (1-\delta) + (1-\tau) \cdot r$

$1{,}0101 = 0{,}97 + 0{,}78r$

$K = (1-\delta) K + I$ $\quad$ $\underline{\underline{r = 0{,}0514}}$

$\underline{\underline{I = 0{,}19455}}$

$K^B = (1-\delta) K^B + 0{,}02$ $\quad$ $(1-\tau) w = \Theta \cdot \frac{C}{1-N}$

$K^B = 0{,}97 K^B + 0{,}02$ $\quad$ $1{,}56 = 0{,}8785 \Theta$

$0{,}03 K^B = 0{,}02$ $\quad$ $\underline{\underline{\Theta = 1{,}7758}}$

$\underline{\underline{K^B = \frac{2}{3}}}$ $\quad$ $\underline{\underline{\lambda = \frac{1}{C} = 1{,}708}}$