$$\pi = \pi^{\text{target}} \tag{1}$$

$$i = \frac{1}{\beta}(1 + \pi^{\text{target}}) - 1 \tag{2}$$

$$\delta_1 = \frac{1}{\beta} - (1 - \delta_0) \tag{3}$$

$$\pi^* = \left[\frac{(1+\pi)^{1-\epsilon_p} - \phi_p (1+\pi)^{\zeta_p(1-\epsilon_p)}}{1-\phi_p} \right]^{\frac{1}{1-\epsilon_p}} - 1 \tag{4}$$

$$\nu^p = \frac{(1-\phi_p)\left(\frac{1+\pi^*}{1+\pi}\right)^{-\epsilon_p}}{1-\phi_p(1+\pi)^{\epsilon_p(1-\zeta_p)}} \tag{5}$$

$$mc = \frac{\epsilon_p - 1}{\epsilon_p} \frac{1+\pi^*}{1+\pi} \frac{1-\phi_p\beta(1+\pi)^{(\epsilon_p(1-\zeta_p))}}{1-\phi_p\beta(1+\pi)^{(1-\epsilon_p)(\zeta_p-1)}} \tag{6}$$

$$R = \frac{1+\tau^c}{1-\tau^k}\left(\frac{1}{\beta} - (1-\delta_0)\right) \tag{7}$$

$$w = (1-\alpha) mc \left(\frac{\alpha mc}{R}\right)^{\frac{\alpha}{1-\alpha}} \tag{8}$$

$$w^* = w \left(\frac{1-\phi_w(1+\pi)^{(\epsilon_w-1)(1-\zeta_w)}}{1-\phi_w} \right)^{\frac{1}{1-\epsilon_w}} \tag{9}$$

I fix Labor:

$$L_d = \frac{1}{3} \tag{10}$$

$$\hat{K} = \left(\frac{\alpha mc}{R}\right)^{\frac{1}{1-\alpha}} L_d \tag{11}$$

$$\hat{K} = K \tag{12}$$

$$I = \delta_0 K \tag{13}$$

$$KG = \left(\frac{w}{(1-\alpha) mc \left(\frac{\hat{K}}{L_d} \right)^{\alpha}} \right)^{\frac{1}{\alpha_g}} \tag{14}$$

$$Y = \frac{\hat{K}^{\alpha} (L_d)^{1-\alpha} (KG)^{\alpha_g}}{\nu^p} \tag{15}$$

$$G = \omega Y \tag{16}$$

$$C = Y - I - G \tag{17}$$

$$\lambda = \frac{1}{C} \frac{1-\beta h}{1-h} \frac{1}{1+\tau^c} \tag{18}$$

$$\mu = (1+\tau^c)\lambda \tag{19}$$

$$g_1 = \frac{\lambda mc Y}{1 - \phi_p \beta (1+\pi)^{(1-\zeta_p)\epsilon_p}} \tag{20}$$

$$g_2 = \frac{\lambda Y}{1 - \phi_p \beta (1+\pi)^{(\zeta_p - 1)(1-\epsilon_p)}} \tag{21}$$

$$f_1 = \epsilon^l \frac{\left(\frac{w}{w^*} \right)^{\epsilon_w (1+\xi)} L_d^{1+\xi}}{1 - \phi_w \beta (1+\pi)^{\epsilon_w (1+\xi)(1-\zeta_w)}} \tag{22}$$

$$f_2 = \frac{\lambda (1-\tau^l) \left(\frac{w}{w^*} \right)^{\epsilon_w} L_d}{1 - \phi_w \beta \left(1+\pi\right)^{(\epsilon_w - 1)(1-\zeta_w)}} \tag{23}$$

$$Welfare = \frac{1}{1-\beta} \left(\ln(C - hC) - \frac{\epsilon^l}{1+\xi} L_d^{1+\xi} \right) \tag{24}$$

$$\tau^c = 0.15 \tag{25}$$

$$\tau^l = 0.05 \tag{26}$$

$$\tau^k = 0.125 \tag{27}$$

$$A = 1 \tag{28}$$

$$Z = 1 \tag{29}$$

$$v = 1 \tag{30}$$

$$\epsilon^l = 1 \tag{31}$$