1 Equilibrium Conditions

Equations derived from households

$$W_t = \theta H_t^{\varphi} C_t^{\sigma} \tag{1}$$

$$1 = \beta E_t \frac{C_t^{\sigma}}{C_{t+1}^{\sigma}} r_t \tag{2}$$

Equations derived from firms

$$H_t: \; W_t = (1-\alpha)\frac{Y_t}{H_t} \tag{3}$$

$$\begin{aligned} K_{t+1}: (1-\tau_{t+1})\alpha\frac{Y_{t+1}}{K_{t+1}} + (1-\tau_{t+1}\chi_{t+1}-\gamma_{t+1})(1-\delta) + \\ \eta\tau_{t+2}r_{t+1}\frac{B_{t+1}}{K_{t+1}} = \frac{1}{\eta}(1-\tau_t\chi_t-\gamma_t) + \Phi\left(\frac{B_{t+1}}{K_{t+1}}\right) \end{aligned} \tag{4}$$

$$B_t: \eta\tau_{t+1}r_t = \Phi'\left(\frac{B_t}{K_t}\right) \tag{5}$$

$$\Phi\left(\frac{B_t}{K_t}\right) = \nu\left(\frac{B_t}{K_t}\right)^{\omega} \tag{6}$$

Other Equations

$$Y_t = A_t K_t^{\alpha} H_t^{1-\alpha} \tag{7}$$

$$K_{t+1} = (1-\delta)K_t + I_t \tag{8}$$

$$Y_t = C_t + I_t \tag{9}$$

2 Steady State

$$r = \frac{1}{\beta} \tag{10}$$

$$\frac{B}{K} = \left(\frac{\eta\tau r}{\nu\omega}\right)^{\frac{1}{\omega-1}} \tag{11}$$

$$(1-\tau)\alpha\frac{Y}{K} = \left(\frac{1}{\eta} - 1 + \delta\right)(1-\tau\chi-\gamma) - \eta\tau r\frac{B}{K} + \nu\left(\frac{B}{K}\right)^{\omega} \tag{12}$$

$$\frac{Y}{K}^{\frac{-\alpha}{1-\alpha}} = A(\frac{K}{H})^{\alpha} = \frac{Y}{H} \tag{13}$$

$$\frac{H}{K} = \left(\frac{Y}{K}\frac{1}{A}\right)^{\frac{1}{1-\alpha}} \tag{14}$$

$$W = (1-\alpha)\frac{K}{H}^{\alpha} \tag{15}$$

$$I = \delta K \tag{16}$$

$$\frac{C}{K} = \frac{Y}{K} - \frac{I}{K} \tag{17}$$

$$K = \left(\frac{W}{\theta \left(\frac{H}{K}\right)^{\varphi} \left(\frac{C}{K}\right)^{\sigma}} \right)^{\frac{1}{\varphi+\sigma}} \tag{18}$$