$$\exp(y_t) = \exp(c_{Mt}) + \exp(x_t) \tag{1}$$

$$(1-a)\ b\ (1-\eta)\ \exp((-C_t)\ e + e\, c_{Ht} - h_{Ht}) = (1-b)\ \exp((-l_t)) \tag{2}$$

$$a\, b\ (1-\tau_h)\ (1-\theta)\ \exp(y_t + (-C_t)\ e + c_{Mt}\ (e-1) - h_{Mt}) = (1-b)\ \exp((-l_t)) \tag{3}$$

$$\beta\ \exp(e\ (-C_{t+1}))\ \left(a\ (1-\delta_H)\ \exp\left((e-1)\ c_{Mt+1}\right) + (1-a)\ \eta\ \exp\left(e\, c_{Ht+1} - k_{Ht}\right)\right) = a\, \lambda\ \exp((-C_t)\ e + c_{Mt}\ (e-1)) \tag{4}$$

$$\beta\ \exp\left(e\ (-C_{t+1}) + (e-1)\ c_{Mt+1}\right)\ (1 + \exp(r_{t+1})\ (1-\tau_k) + \tau_k\, \delta_M - \delta_M) = \lambda\ \exp((-C_t)\ e + c_{Mt}\ (e-1)) \tag{5}$$

$$\theta\ \exp\left(y_t - k_{Mt-1}\right) = \exp(r_t) \tag{6}$$

$$(1-\theta)\ \exp(y_t - h_{Mt}) = \exp(w_t) \tag{7}$$

$$\exp(y_t) = \exp\left(\theta\, k_{Mt-1} + (1-\theta)\ (h_{Mt} + z_{Mt})\right) \tag{8}$$

$$\exp(C_t) = (a\ \exp(c_{Mt}\, e) + (1-a)\ \exp(e\, c_{Ht}))^{\frac{1}{e}} \tag{9}$$

$$\exp(l_t) = 1 - \exp(h_{Ht}) - \exp(h_{Mt}) \tag{10}$$

$$\exp(c_{Ht}) = \exp\left(\eta\, k_{Ht-1} + (1-\eta)\ (h_{Ht} + z_{Ht})\right) \tag{11}$$

$$\exp(x_{Mt}) = \lambda\ \exp(k_{Mt}) - (1-\delta_M)\ \exp\left(k_{Mt-1}\right) \tag{12}$$

$$\exp(x_{Ht}) = \lambda\ \exp(k_{Ht}) - (1-\delta_H)\ \exp\left(k_{Ht-1}\right) \tag{13}$$

$$\exp(x_t) = \exp(x_{Mt}) + \exp(x_{Ht}) \tag{14}$$

$$\exp(k_t) = \exp(k_{Mt}) + \exp(k_{Ht}) \tag{15}$$

$$\exp(T_t) = \tau_h\ \exp(h_{Mt} + w_t) + \tau_k\ \exp\left(k_{Mt-1} + r_t\right) - \tau_k\, \delta_M\ \exp\left(k_{Mt-1}\right) \tag{16}$$

$$z_{Mt} = \rho_M\, z_{Mt-1} + \epsilon_{Mt} \tag{17}$$

$$z_{Ht} = \rho_H\, z_{Ht-1} + \epsilon_{Ht} \tag{18}$$