

$$\exp(y_t) = \exp(c_{M_t}) + \exp(x_t) \quad (1)$$

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

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

$$\beta \exp(e (-C_{t+1})) (a (1 - \delta_H) \exp((e - 1) c_{M_{t+1}}) + (1 - a) \eta \exp(e c_{H_{t+1}} - k_{H_t})) = a \lambda \exp((-C_t) e + c_{M_t} (e - 1)) \quad (4)$$

$$\beta \exp(e (-C_{t+1}) + (e - 1) c_{M_{t+1}}) (1 + \exp(r_{t+1}) (1 - \tau_k) + \tau_k \delta_M - \delta_M) = \lambda \exp((-C_t) e + c_{M_t} (e - 1)) \quad (5)$$

$$\theta \exp(y_t - k_{M_{t-1}}) = \exp(r_t) \quad (6)$$

$$(1 - \theta) \exp(y_t - h_{M_t}) = \exp(w_t) \quad (7)$$

$$\exp(y_t) = \exp(\theta k_{M_{t-1}} + (1 - \theta) (h_{M_t} + z_{M_t})) \quad (8)$$

$$\exp(C_t) = \exp(c_{M_t} a + (1 - a) c_{H_t}) \quad (9)$$

$$\exp(l_t) = 1 - \exp(h_{H_t}) - \exp(h_{M_t}) \quad (10)$$

$$\exp(c_{H_t}) = \exp(\eta k_{H_{t-1}} + (1 - \eta) (h_{H_t} + z_{H_t})) \quad (11)$$

$$\exp(x_{M_t}) = \lambda \exp(k_{M_t}) - (1 - \delta_M) \exp(k_{M_{t-1}}) \quad (12)$$

$$\exp(x_{H_t}) = \lambda \exp(k_{H_t}) - (1 - \delta_H) \exp(k_{H_{t-1}}) \quad (13)$$

$$\exp(x_t) = \exp(x_{M_t}) + \exp(x_{H_t}) \quad (14)$$

$$\exp(k_t) = \exp(k_{M_t}) + \exp(k_{H_t}) \quad (15)$$

$$\exp(T_t) = \tau_h \exp(h_{M_t} + w_t) + \tau_k \exp(k_{M_{t-1}} + r_t) - \tau_k \delta_M \exp(k_{M_{t-1}}) \quad (16)$$

$$z_{M_t} = \rho_M z_{M_{t-1}} + \epsilon_{M_t} \quad (17)$$

$$z_{H_t} = \rho_H z_{H_{t-1}} + \epsilon_{H_t} \quad (18)$$