C Summary of the theoretical model

The model in is fully described by the following sets of variables:

- Prices: π_t, $W_t/P_t, r_{t,t+1}$
- Interest rates: R_t
- Allocations: C_t, Y_t, H_t, λ_t
- Shocks: $\sigma_{r,t}$, $\epsilon_{r,t}$, $\epsilon_{\sigma,t}$

Equations describing the model are given by:

$$\lambda_t = 1/(C_t - \alpha C_{t-1})$$
$$\lambda_t = \beta E_t \lambda_{t+1} \left(\frac{R_t}{\pi_{t+1}} \right) r_{t,t+1} = 1/R_t$$
$$\lambda_t \frac{W_t}{P_t} = H_t^{\eta-1}$$
$$Y_t = H_t$$
$$\theta - 1 = \theta \frac{W_t}{P_t} - \phi \left(\frac{\pi_t}{\pi} - 1 \right) \left(\frac{\pi_t}{\pi} \right) + \beta \phi E_t \left[\frac{\lambda_{t+1}}{\lambda_t} \left(\frac{\pi_{t+1}}{\pi} - 1 \right) \left(\frac{\pi_{t+1}}{\pi} \right) \left(\frac{Y_{t+1}}{Y_t} \right) \right]$$
$$Y_t = C_t + \frac{\phi}{2} Y_t \left(\frac{\pi_t}{\pi} - 1 \right)^2$$
$$\frac{R_t}{R} = \left(\frac{R_{t-1}}{R} \right)^{\rho_r} \left(\frac{\pi_t}{\pi} \right)^{\rho_\pi} \left(\frac{Y_t}{Y_{t-1}} \right)^{\rho_y} e^{\sigma_{r,t}} e^{\epsilon_{r,t}}$$
$$\sigma_{r,t} = \rho_\sigma \sigma_{r,t-1} + q_\sigma \epsilon_{\sigma,t}$$
$$\epsilon_{r,t} \sim N(0,1)$$
$$\epsilon_{\sigma,t} \sim N(0,1)$$

The deterministic steady state, given parameters set in calibration, is described by:

$$\pi = 1.005$$
$$R = \pi/\beta$$
$$r = 1/R$$
$$\tfrac{W}{P} = \tfrac{\theta-1}{\theta(1-\alpha)}$$
$$H = \left(\tfrac{\theta-1}{\theta(1-\alpha)} \right)^{1/\eta}$$
$$Y = \left(\tfrac{\theta-1}{\theta(1-\alpha)} \right)^{1/\eta}$$
$$C = \left(\tfrac{\theta-1}{\theta(1-\alpha)} \right)^{1/\eta}$$
$$\lambda = \left(\tfrac{\theta(1-\alpha)}{\theta-1} \right)^{1/\eta}$$