

The system of equations describes the economy as below:

$$\beta R_t^b = E_t \left[ \left( \frac{\varepsilon_t^Z}{\varepsilon_{t+1}^Z} \right) \left( \frac{C_{j,t+1}}{C_{jt}} \right) \right] \quad (1)$$

$$W_t = \frac{\chi}{\varepsilon_t^Z} H_t^{\sigma_L} C_t \quad (2)$$

$$K_t = \varepsilon_t^I I_t + (1 - \delta) K_{t-1} \quad (3)$$

$$\frac{R_t^b}{\varepsilon_t^I} = E_t \left[ \frac{1 - \delta}{\varepsilon_{t+1}^I} + r_{t+1}^k \right] \quad (4)$$

$$Y_t = \varepsilon_t^A K_{t-1}^\alpha H_t^{1-\alpha} \quad (5)$$

$$r_t^k = \alpha \frac{Y_t}{K_{t-1}} \quad (6)$$

$$W_t = (1 - \alpha) \frac{Y_t}{H_t} \quad (7)$$

$$Y_t = C_t + I_t + \varepsilon_t^G \xi_G \bar{Y} \quad (8)$$

And four exogenously stochastic processes:

$$\log \varepsilon_t^Z = \rho^Z \log \varepsilon_{t-1}^Z + \epsilon_t^Z \quad (9)$$

$$\log \varepsilon_t^I = \rho^I \log \varepsilon_{t-1}^I + \epsilon_t^I \quad (10)$$

$$\log \varepsilon_t^A = \rho^A \log \varepsilon_{t-1}^A + \epsilon_t^A \quad (11)$$

$$\log \varepsilon_t^G = \rho^G \log \varepsilon_{t-1}^G + \epsilon_t^G \quad (12)$$