

Loss function

In this model, the household's welfare criterion is the following:

$$\sum_{t=0}^{\infty} \beta^t \left\{ u(c_t) - n_t \frac{h_t^{1+\eta}}{1+\eta} \right\}$$

where u represents the utility function, c_t consumption, n_t employment and h_t hours worked by each household's member.

This welfare criterion admits the following second-order approximation:

$$\begin{aligned} & \sum_{t=0}^{\infty} \beta^t \left\{ u(c_t) - n_t \frac{h_t^{1+\eta}}{1+\eta} \right\} \\ &= -\frac{1}{2} \sum_{t=0}^{\infty} \beta^t L_t + t.i.p + O^3 \end{aligned} \quad (1)$$

where $t.i.p$ represents terms independent of policy, O^3 are terms of order third and higher and L_t is a purely quadratic loss function given by:

$$L_t = \lambda \pi_t^2 + (\sigma - 1) \hat{c}_t^2 + (\hat{n}_t + \hat{h}_t)^2 + \eta \hat{h}_t^2 + \chi(1 - \varsigma) \hat{\theta}_t^2 \quad (2)$$

where π_t represents inflation and θ_t the labour market tightness. Hats are meant to indicate log-deviations of a variable around its steady state value. λ , η , σ , χ and ς are parameters of the model.