

An RBC model with endogenous labor supply (Frisch elasticity-based)

Recursive formulation

The representative household solves the following problem:

$$\begin{aligned} V(a; S) = \max_{c, a'} & \frac{c^{1-\sigma}}{1-\sigma} - \frac{\eta}{1+\frac{1}{\chi}} L^{1+\frac{1}{\chi}} + \beta \mathbb{E} V(a'; S') \\ \text{s.t. } & (1 + \tau^c)c + a' = (1 + (1 - \tau^r)r(S))a + (1 - \tau^w)w(S)L \end{aligned}$$

where the aggregate state S is as follows

$$S = [K, A].$$

K is the aggregate capital stock. A is TFP that follows the log AR(1) process:

$$\log(A') = \rho \log(A) + \sigma \epsilon, \quad \sigma \sim N(0, 1).$$

c is consumption, a is the wealth in the beginning of a period.