Model Summary

$$\max_{\{c_t, l_t, a_{t+1}\}_{t=0}^{\infty}} \quad E\left\{\sum_{t=0}^{\infty} \beta^t \left[ln(c_t) + \gamma ln(l_t)\right]\right\} \tag{3.1.1}$$

Such that

Individual´s budjet Constraint $$c_t = (1-\tau_t)[w_t n_t + \pi_t] \tag{3.1.2}$$

Time available to work $$1 = [n_t + l_t] \tag{3.1.3}$$

Firm profits $$\pi_t = F(n_t) - w_t n_t \tag{3.2.1}$$

Tecnology $$F(n_t) = z_t n_t^{1-\alpha} \tag{3.2.2}$$

Government´s budjet constraint **(a_{t+1} represent is the oil savings and IP_t the Oil revenues)** $$G_t + a_{t+1} = \tau_t[w_t n_t + \pi_t] + IP_t + (1+r_t)a_t. \tag{3.3.1}$$

Stochastic processes IP y z $$j_{t+1} = \rho^j j_t + \epsilon_{t+1}^j \; ; \; j \in \{z, P\} \; y \; \epsilon_{t+1}^j \sim iid\ (0, \sigma^2).$$

First order conditions of this problem

Euler $$\frac{1}{c_t} = \beta E\left[\left(\frac{1}{c_{t+1}}\right)(1+r_t)\right] \tag{3.4.1}$$

Intratemporal $$\frac{\gamma c_t}{(1-n_t)} = (1-\alpha)\frac{y_t}{n_t} \tag{3.4.2}$$

Feasibility condition $$c_t + G_t + a_{t+1} = y_t + IP_t + (1+r_t)a_t \tag{3.4.1}$$

Total GDP $$y_t^T = y_t + IP_t \tag{3.4.1}$$

In Dynare I asume that n_t is given according to the data for México, and r_t is also given by its level of steady satate.