modelo RBC

⇒ Economía descentralizada

- Precios
- Hogares y Firmas
- HH: $C_t, I_t, B_t, K_{t+1}$

  Fs: $K_t$
- HH dueños de las firmas ($\Pi_t$)

HH's:

$$\max_{C_t, I_t, B_t, K_{t+1}} E_0 \sum_{t=0}^{\infty} \beta^t \left[ \frac{C_t^{1-\sigma} - 1}{1-\sigma} \right] \quad (1)$$

s.t

$$\underbrace{C_t + I_t + B_t}_{\text{Gasto}} \leq \underbrace{W_t + R_t^k K_t + (1+r_{t-1}) B_{t-1} + \Pi_t}_{\text{Ingreso}} \quad (2)$$

$$K_{t+1} = I_t + (1-\partial) K_t \quad (3)$$

$B_{t+1} \geq kY_t$ : Endeudamiento

$k \in [0,1]$

$\lambda_t > 0$ : $B_{t+1} = kY_t$ ← Activa

$\lambda = 0$ : $B_{t+1} > kY_t$ (Inactiva)

Luego de plantear $\mathcal{L}_t$

(3) → (2): (desaparece $I_t$)

FOC:

$[C_t]$: $\frac{\partial \mathcal{L}}{\partial C_t} = 0 \Rightarrow u'(C_t) = C_t^{-\sigma} = \lambda_t$ ← Precio Sombra

$[B_t] = \frac{\partial \mathcal{L}}{\partial B_t} = 0 \Rightarrow \lambda_t = \beta(1+r_t) E_t[\lambda_{t+1}]$

$[K_{t+1}]$: $\frac{\partial \mathcal{L}}{\partial K_{t+1}} = 0 \Rightarrow \lambda_t = \beta(1+r_t) E[\lambda_{t+1}(R_{t+1}^k + (1-\partial))]$

Solución:

$$\boxed{\begin{aligned} &E_t\left[\beta\left(\frac{C_t}{C_{t+1}}\right)^{-\sigma}(1+r_t)\right] = 1 \quad (4) \\ &E_t\left[\beta\left(\frac{C_t}{C_{t+1}}\right)^{-\sigma}(R_{t+1}^k + (1-\partial))\right] = 1 \quad (5) \end{aligned}}$$

⇒ Caracterizan HH

Intuición:

(4) Beneficio Mgnal de Consumir en t = Costo Mgnal de Sacrificar 1 unidad de $C_{t+1}$ } Condición (relación) entre $C_{t+1}$ y $C_t$

(5) Beneficio Mgn de Consumir en t = Costo de Sacrificar $C_{t+1}$ descontado por la rentabilidad del capital } $C_t$ y $C_{t+1}$ $K_{t+1}$: (Variables Reales

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Firmas:

$$\max_{N_t, K_t} \Pi_t = A_t K_t^{\alpha} N_t^{1-\alpha} - W_t N_t - R_t^k K_t$$

$$\frac{\partial \Pi_t}{\partial K_t} = 0 ; \quad A_t \alpha K_t^{\alpha-1} N_t^{1-\alpha} = R_t^k \quad (6) \quad \text{Prod Mgnal de } K_t = R_t^k$$

$$\frac{\partial \Pi_t}{N_t} = 0 ; \quad A_t (1-\alpha) K_t^{\alpha} N_t^{-\alpha} = W_t \quad (7) \quad \text{Prod Mgnal de } N_t = W_t$$

Equilibrio:

- M$^{dos}$ se vacien condiciones:

$$N_t^* = 1 \quad (8)$$

$$B_t = 0 \Rightarrow \text{Zero Net Supply} \quad (9)$$

Condiciones de Equilibrio:

FOC del HH + FOC de la firma + M.C + RP

$$C_t + K_{t+1} - (1-\partial) K_t = A_t K_t^{\alpha} \quad (10)$$

$$E_t\left[\beta\left(\frac{C_t}{C_{t+1}}\right)^{-\sigma}\left(\alpha A_{t+1} K_{t+1}^{\alpha-1} + (1-\partial)\right)\right] = 1 \quad (11)$$

Un equilibrio en esta economia son contidades $K_{t+1}, C_t, B_t, I_t, N_t$ y precios $(r_t, W_t, R_t^k)$ tal que todos los agentes maximicen su beneficio y los mercados se vacían

Estado Estacionario : $X_t = X_{t+1}$

$$\frac{X_{t+1}}{X_t} = 1$$

De (11):

$$\alpha A K^{\alpha-1} + (1-\partial) = \frac{1}{\beta}$$

$$\hat{K} = \left(\left(\frac{1}{\beta} - (1-\partial)\right)\frac{1}{\alpha A}\right)^{\frac{1}{\alpha-1}}$$

$C_t$ ?, $I_t$, $B_t$

$$K_{t+1} = I_t + (1-\partial) K_t$$

$$\hat{K} = I + (1-\partial)\hat{K}$$

$$I = \hat{K}(1-(1-\partial))$$

$$\hat{I} = \partial \hat{K}$$