IRINA

PS08 (Work-In-Progress)

I used Sergio's code and all assumptions in Sergio's code

Aiyagari - OLG model: agents have finite life, 20 years. There is income uncertainty (labour efficiency shock) and so agents save for retirement, additional intertemporal aspect.

Algorithm for OLG:
Backward induction - EGM

- I included H = 20 as there is a need loop for age so it added to G_ap, G_c
- Terminal condition G_ap = 0 for all states

$$G_c = (1+r)\,a\_grid[i\_a] + w\,\epsilon\_grid[i\_\epsilon]$$

I added function for terminal condition

- Backward induction is in line with Algorithm. Still not complete.
- To simulate Aiyagari model, N of agents - 100,000, t = 5000. I attempted to compile code, but it needs correction.
- "Rouwenhorst95" fn discretizes AR(1) for idiosyncratic productivity shock. The output of fn's used to simulate idios. prod. shocks
- $\bar{\epsilon}$: average labor eff
- n_ϵ: N of discrete product states in grid
- ϵ_grid: diff. income levels due to shocks
- $r = MP_K - \delta$ in eqm
- $r = 0.9\left(\frac{1}{\beta} - 1\right)$ initial guess
- $c = (1+r)a + w\bar{\epsilon}\epsilon - a'$
- $L = 1$, $E[\epsilon] = 1$

$$r = \alpha z K^{\alpha-1} L^{1-\alpha} - \delta$$

$$K^{\alpha-1} = \frac{r+\delta}{\alpha z L^{1-\alpha}} \quad \Big| \wedge \frac{1}{\alpha-1}$$

$$K = \left(\frac{r+\delta}{\alpha z L^{1-\alpha}}\right)^{\frac{1}{\alpha-1}}$$