ECON 702 Macroeconomics I

Discussion Handout 12*

26 April 2024

Consider a small open economy that lasts for two periods, $t = 1, 2$. The representative household has preferences over consumption given by:

$$U(C_1, C_2) = u(C_1) + \beta u(C_2)$$

where $0 < \beta < 1$ is the discount factor. The household is endowed with income Q_1 in period 1 and Q_2 in period 2. The household can borrow and lend in international financial markets at a constant interest rate $r > 0$, and enters period 1 with a net foreign asset position of B_0^*.

1. Derive the household's intertemporal budget constraint.
2. Write down the household's optimization problem, and solve for the Euler equation.
3. Suppose that $u(c) = \sqrt{c}$, $\beta = \frac{1}{1+r} = 1$, and $Q_1 = 9$, $Q_2 = 16$, $B_0^* = 0$. Find the fraction γ of lifetime income that the country would be willing to give up to participate in international markets.
4. How does your answer to the previous question change with $u(c) = -\frac{1}{c}$? Give economic intuition.
5. Find the trade balance and current account in the setting of part 3.
6. What about when $r = \frac{1}{15}$, and $\beta = \frac{1}{1+r} = \frac{15}{16}$? What about when $B_0^* = -5$? Verify that $CA_t = \Delta NFA_t$ in this case.

*Teaching Assistants: Anna Lukianova (Email:lukianova@wisc.edu) and John Ryan (Email: john.p.ryan@wisc.edu). Based on the lecture notes by Jesus Fernandez-Villaverde and Dirk Krueger.