Week 4 - Problems

UCLA - Econ 102 - Fall 2018

François Geerolf

Consider the model of lecture 3 again. Instead of logarithmic preferences, assume that preferences are given by:

$$u(c) = \frac{c^{1-\sigma} - 1}{1 - \sigma},$$

1. Under what condition on σ is this an increasing and concave utility function?
2. Show using 4 different ways that:
$$\frac{\beta u'(c_1)}{u'(c_0)} = \frac{1}{1+R}$$
3. Using the equation in question 1, what is the ratio c_1/c_0?
4. Replace in the intertemporal budget constraint to find an implicit equation for c_1. Do the same for c_0.
5. Assume that $\sigma = 1/2$, and $f_0 = 0$, $y_0 = \$90000$, $y_1 = 0$, $\beta = 1$. What are c_0 and c_1 if $R = 1\%$? What about if $R = 2\%$? How much does c_0 change then? How much in percentage terms?
6. Same questions if $\sigma = 1$.
7. Same questions if $\sigma = 2$.
8. Compare the changes in c_0 following an increase in the real interest rates in questions 5, 6, 7. Comment.