LCM and RBC: Practice Problems

1. Using the Life-Cycle Model as developed in class, discuss the effects on consumption of the following changes:

a. Life Expectancy increases without a change in the retirement age.

b. The retirement age increases without a change in life expectancy.

2. In class, we assumed that $u(C_t) = ln(C_t)$. Now assume that households have a constant elasticity of substitution utility function where $u(C_t) = \frac{C_t^{1-\sigma}}{1-\sigma}$. Re-derive the Euler Equation?

3. Using your answer from #2, how does the degree of consumption smoothing depend on σ? Is there any value where households do not respond at all to changes in the interest rate?

4. Now suppose that households have the following utility function: $u(C_t) = C_t^2$. Re-derive the solution in the Life Cycle Model for C_t. Explain why your answer is so different than Equation (5) from class.

5. Recall the RBC model from class. Suppose that labor supply is completely inelastic so that households always choose to supply the same amount of labor. How would this affect the response of output to a negative productivity shock.

6. True or False? In the RBC model, recessions are a good thing.

7. How does involuntary unemployment respond to negative productivity shocks in the RBC model?