

Homework 4

Instructions: Here are a couple of optional homework problems. They are designed to help you learn. I do not ask you to hand in answers.

1. The Invisible Hand, I

Please consider once again the “Foreseen jump in g ” experiment studied in section 11.9. This exercise asks you to put yourself in the shoes of the representative household and to think through the optimum problem that it faces within a competitive equilibrium at time 0.

- a. Please describe the signals that the market sends to the household *after* the new $\{g_t\}_{t=0}^{\infty}$ policy materializes at time 0. Please list all of the objects that “the market” (also known as “the invisible hand”) presents as *exogenous* to the representative household.
- b. Please describe how the “Big K ” part of a “Big K , little k ” argument is used to determine *all* of those objects exogenous to the household. **Hint:** This is accomplished by applying the shooting algorithm in section 11.9.
- c. Please explain thoroughly how the representative household chooses to respond to the signals presented to it by the market at time 0.
- d. Given the objects that the market presents to the representative household, please tell how you would use a shooting algorithm to compute the path of $\{c_t, k_{t+1}\}_{t=0}^{\infty}$ chosen by the household.
- e. Please describe how to complete a “Big K , little k ” argument using your answers to parts **c** and **d**.

2. The Invisible Hand, II

Please consider again the “Foreseen jump in τ_n ” experiment in section 11.12. Like the previous problem, this one puts you into the shoes of the representative household and asks you to think through the optimum problem that it faces within a competitive equilibrium with distorting taxes at time 0.

- a. Please describe the signals that the market sends to the household *after* the new $\{\tau_{nt}\}_{t=0}^{\infty}$ policy materializes at time 0. Please list all objects that “the market” presents as *exogenous* to the representative household.
- b. Keeping in mind that there is a “Big K , little k ” argument in the background, please provide a complete explanation for why the household chooses the paths of $\{c_t, n_t, k_t\}_{t=0}^{\infty}$ displayed in figure 11.12.3