

Do not write your name on the assignment. Write your name only on the back of this sheet of paper and staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 1 point on the assignment.

This assignment covers chapter 9 through section 9.4. The syllabus says that this week has us finishing chapter 8 and starting chapter 9. However, the two sections that were left in chapter 8 were marked as ones the author thought could be skipped and are very difficult. Therefore, like last semester, we are skipping them. Thus, I am covering almost all of chapter 9 in this assignment.

Send me an e-mail with the answers on spreadsheets for the questions that require them.

1) Suppose that  $C_t = 0.8Y_{t-1}$ ,  $I = 0.5(C_t - C_{t-1})$ ,  $G = 1$ , and  $NX_t = -0.1Y_{t-1}$ , where  $NX$  is net exports.

A) (15 points) Derive the reduced form equation for  $Y_t$ . Show all work.

B) (15 points) Create a simulation in a spreadsheet like table 9.1. You can use the equations I gave above to calculate  $C_t$ ,  $I_t$ ,  $G$ , and  $NX_t$  in the spreadsheet and add them together to calculate  $Y_t$ . Assume that all variables are zero during years  $t-1$  and  $t-2$ . Continue the spreadsheet enough years so that  $Y$  converges.

C) (15 points) Given parts A and B, what are the short-run and long-run government spending multipliers? How can you tell? Which multiplier is larger? Why is it larger? Hint:  $G$  was = 0 before the simulation started.

2) (10 points each) For each of the named variables below, explain whether you think the variable is likely to have monotonic convergence, monotonic explosion, damped oscillation, or explosive oscillation. If the variable does not really fit any one of the categories, choose the one which is the closest fit and explain your choice.

A) GDP

B) a player's batting average over the season

C) the world population.

3) (15 points) Is it normally type I shocks or type II shocks have a large enough effect on the economy to result in business cycles that last for more than a few periods? Why do they have a bigger effect?

4) (10 points) In the section about the NBER simulations, it was stated that the shocks in the data were autocorrelated. What does that mean to the lay person?