Economics 2 Professor Christina Romer
Spring 2020 Professor David Romer

PROBLEM SET 5, PART 1

DUE BY 2 P.M. ON THURSDAY, APRIL 16TH

You may work together on the problems, but your answers must be ***in your own words*** and ***handwritten***. You also must ***list the other students with whom you worked***.

For all questions be sure to explain your answers and to use graphs whenever appropriate.

1. A worker who is close to retirement is choosing between two possible paths for the rest of their career. One possibility is to continue working in their current job, in which case they will earn $50,000 per year this year and each of the subsequent 4 years. Alternatively, they could not work this year but instead enroll in a one-year intensive coding program that costs $20,000, in which case they would earn $70,000 per year each of the four years after this one. Let i denote the nominal annual interest rate.

- **a.** Use the concept of present value to explain how the worker should go about deciding which choice is better financially.
- **b.** If the interest rate is 5%, which choice will make the worker better off financially? What if the interest rate is 10%?

2. Describe how each of the following developments will affect the economy's normal real interest rate (r*), normal investment (I*), and normal saving (S*).

- **a.** The government decreases normal government spending (but leaves normal tax revenues unchanged).
- **b.** A change in attitudes leads consumers to permanently consume more at a given level of the real interest rate.

3. Suppose that the components of planned aggregate expenditure (PAE) take the following specification:

$$C = 100 + 0.6Y$$
$$I^p = 300$$
$$G = 200$$
$$NX = 200$$

- **a.** Graph the expenditure line corresponding to this specification, the 45-degree line, and the equilibrium level of total output in the short run.
- **b.** Now solve the example algebraically to determine the equilibrium level of total output in the short run. (Think of the two equations represented in your diagram above: Y = PAE and PAE = f(Y). Substitute the second into the first and then solve for Y. If you need more help, see pp. 661–662 of the textbook.
- **c.** Suppose that planned investment (I^p) increases to 500. Show what will happen to total output in the short run both graphically and algebraically.