

Economics 304
Homework Set #3

Fall 2013
Due: 9am, Friday, October 11

1. Draw a budget-constraint/indifference-curve diagram to illustrate each of the following situations with current consumption (C_1) on the horizontal axis and future consumption (C_2) on the vertical axis. You should assume that the person is approximately a consumption smoother, so that whether she is initially a saver or dissaver (borrower) is determined mainly by her endowment point. Be sure to identify clearly the endowment point, the budget constraints before and after the change, and the amounts saved or dissaved before and after the change.

- a. A person who is initially a saver in period 1 and who responds to an increase in the real interest rate by decreasing saving.
- b. A person who is initially a saver in period 1 and who responds to an increase in the real interest rate by increasing saving.
- c. A person who is initially a dissaver (borrower) in period 1 and who responds to an increase in the real interest rate by increasing saving (reducing dissaving).
- d. Explain (based on substitution and income effects) why the fourth case (dissaver who increases dissaving when the real interest rate rises) is impossible.

2. Explain why the real interest rate rather than the nominal interest rate is used in the budget constraint for consumers. Explain why the real interest rate rather than the nominal interest rate is relevant for firms deciding whether to invest in real capital.

3. Explain the fallacy in the following statement: "Increases in the real interest rate will raise investment because households will find the higher rate of return more attractive."

4. Consider a model in which individuals live for three periods, earning income of Y_1 , Y_2 , and Y_3 and consuming C_1 , C_2 , and C_3 . You may assume that they receive and leave no bequests.

- a. Show the equation for the individual's lifetime budget constraint.
- b. Solve for permanent income using an extension of equation (8.2) in the textbook.
- c. Assuming for simplicity that the real interest rate is zero and that the consumer chooses perfectly smooth consumption, what consumption level will she choose in each year if $Y_1 = \$20,000$, $Y_2 = \$100,000$, and $Y_3 = \$0$ and she has access to perfect capital markets? In an economy comprising many such consumers, what pattern of borrowing and lending will emerge among individuals of various ages?
- d. How would her consumption in each period be different if the government had a program giving a \$30,000 transfer payment to all young people, paid for by a \$30,000 tax on all middle-aged people?

- e. How would her consumption in each period be affected if the government had a Social Security program that paid old people \$30,000 and taxed middle-aged people \$30,000 to pay for it?
- f. Re-do parts c through e under the assumption that young individuals are totally unable to borrow due to imperfections in the capital market.
- g. What implications does your analysis have for government transfer policies?

5. Read the very short article “Did the 2008 Tax Rebates Stimulate Spending?” *American Economic Review* 99 (2):374–379 (May 2009). (This is available through the Reed Library Web site. Search for the journal under “Print and E-Journals.”) What are the authors’ results? Are they consistent with modern consumption theory? Are they consistent with Keynes’s consumption theory? Explain your conclusions.