Class 26: Saving, Investment and Interest Rates Exercises

In class 26, students will work in groups to solve the following exercises and will also make reports on journal assignment five.

1. Corey has a mountain bike worth $300, a credit card debt of $150, $200 in cash, a Sandy Koufax baseball card worth $400, $1,200 in a checking account, and an electric bill due for $250.
   a. Construct Corey’s balance sheet and calculate his net worth. For each remaining part, explain how the event affects Corey’s assets, liabilities, and wealth.
   b. Corey goes to a baseball card convention and finds out that his baseball card is a worthless forgery.
   c. Corey uses $150 from his paycheck to pay off his credit card balance. The remainder of his earnings is spent.
   d. Corey writes a $150 check on his checking account to pay off his credit card balance. Of the events in the previous three parts, which, if any, corresponds to saving on Corey’s part?

2. Ellie and Vince are a married couple, both with college degrees and jobs. How would you expect each of the following events to affect the amount they save each month? Explain your answers in terms of the basic motivations for saving.
   a. Ellie learns she is pregnant.
   b. Vince reads in the paper about possible layoffs in his industry.
   c. Vince had hoped that his parents would lend financial assistance toward the couple’s planned purchase of a house, but he learns that they can’t afford it.
   d. Ellie announces that she would like to go to law school in the next few years.
   e. A boom in the stock market greatly increases the value of the couple’s retirement funds.
   f. Vince and Ellie agree that they would like to leave a substantial amount to local charities in their wills.

3. Individual retirement accounts, or IRAs, were established by the U.S. government to encourage saving. An individual who deposits part of current earnings in an IRA does not have to pay income taxes on the earnings deposited, nor are any income taxes charged on the interest earned by the funds in the IRA. However, when the funds are withdrawn from the IRA, the full amount withdrawn is treated as income and is taxed at the individual’s current income tax rate. In contrast, as individual depositing in a non-IRA account has to pay income taxes on the funds deposited and on interest earned in each year but does not have to pay taxes on withdrawals from the account. Another feature of IRAs that is different form a standard saving account is that funds deposited in an IRA cannot be withdrawn prior to retirement, except upon payment of a substantial penalty.
   a. Greg, who is five years from retirement, receives a $10,000 bonus at work. He is trying to decide whether to save this extra income in an IRA account or in a regular savings account. Both accounts earn 5 percent nominal interest, and Greg is in the 30 percent tax bracket in every year (including his retirement year). Compare the amounts that Greg will have in five years under each of the two savings strategies, net of all taxes. Is the IRA a good deal for Greg?
   b. Would you expect the availability of IRAs to increase the amount that households save? Discuss in light of (1) the response of saving to changes in the real interest rate and (2) psychological theories of saving.
4. Ellie and Vince are trying to decide whether to purchase a new home. The house they want is priced at $200,000. Annual expenses such as maintenance, taxes, and insurance equal 4 percent of the home’s value. If properly maintained, the house’s real value is not expected to change. The real interest rate in the economy is 6 percent, and Ellie and Vince can qualify to borrow the full amount of the purchase price (for simplicity, assume no down payment) at that rate. Ignore the fact that mortgage interest payments are tax-deductible in the United States.
   a. Ellie and Vince would be willing to pay $1,500 monthly rent to live in a house of the same quality as the one they are thinking about purchasing. Should they buy the house?
   b. Does the answer to part a change if they are willing to pay $2,000 monthly rent?
   c. Does the answer to part a change if the real interest rate is 4 percent instead of 6 percent?
   d. Does the answer to part a change if the developer offers to sell Ellie and Vince the house for $150,000?
   e. Why do home-building companies dislike high interest rates?

5. The builder of a new movie theater complex is trying to decide how many screens she wants. Below are her estimates of the number of patrons the complex will attract each year depending on the number of screens available.

<table>
<thead>
<tr>
<th>Number of Screens</th>
<th>Total number of patrons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40,000</td>
</tr>
<tr>
<td>2</td>
<td>75,000</td>
</tr>
<tr>
<td>3</td>
<td>105,000</td>
</tr>
<tr>
<td>4</td>
<td>130,000</td>
</tr>
<tr>
<td>5</td>
<td>150,000</td>
</tr>
</tbody>
</table>

After paying the movie distributors and meeting all other non-interest expenses, the owner expects to net $2.00 per ticket sold. Construction costs are $1,000,000 per screen.
   a. Make a table showing the value of marginal product for each screen from the first through the fifth. What property is illustrated by the behavior of marginal products?
   b. How many screens will be built if the real interest rate is 5.5 percent?
   c. If the real interest rate is 7.5 percent?
   d. If the real interest rate is 10 percent?
   e. If the real interest rate is 5.5 percent, how far would construction costs have to fall before the builder would be willing to build a five-screen complex?

6. For each of the following scenarios, use supply and demand analysis to predict the resulting changes in the real interest rate, national saving, and investment. Show all your diagrams.
   a. The legislature passes a 10 percent investment tax credit. Under this program, for every $100 that a firm spends on new capital equipment, it receives an extra $10 in tax refunds from the government.
   b. A reduction in military spending moves the government’s budget from deficit into surplus.
   c. A new generation of computer-controlled machines becomes available. These machines produce manufactured goods much more quickly and with fewer defects.
   d. The government raises its tax on corporate profits. Other tax changes also are made, such that the government’s deficit remains unchanged.