

**Problem Set #4**  
**November 25, 2008**  
**Due: December 4, 2008**

1. The earnings of those who obtain a college education (relative to high school graduates) have increased dramatically in the past couple of years. At the same time, tuition at colleges and universities has increased faster than inflation. Answer the following questions in terms of the individual's choice to attend school and the supply and demand model for education.
  - a. Explain in economic terms how it is possible that higher costs faced by colleges and reflected in greater tuition could cause an increase in the relative wages of college graduates. If this is the correct explanation for the observed increase in the earnings of college graduates, what do we expect has happened to the number of college graduates?
  - b. Explain how the increase in the return to a college education could be due to an increase in the relative demand for the skills of educated workers. What do we expect to happen to the number of college graduates?
2. Peter has just graduated from high school. He will live for three more periods and is considering three alternative education-work options. He can start working right away, earning \$100,000 in period 1, \$110,000 in period 2, and \$90,000 in period 3. He can also go to college in period 1, spending \$10,000 in tuition and books in that period, and then earn \$150,000 in periods 2 and 3. Finally, he can get a doctorate degree in period 2 after completing his college education. If he gets a doctorate degree he will not need to pay for tuition or books in period 2 (he will receive a fellowship) and he will earn \$300,000 in period 3. The rate of discount is 20 percent. What should Peter do? (Hint: Assume period one is the current period.)
3. **Answer True, False or Uncertain and Explain.** The theory of compensating wage differentials suggests that, given competitive markets, those individuals in jobs with more pleasant working conditions will receive wages below their value of marginal product (VMP) while those working in unpleasant jobs will receive wages above their VMP.
4. Jill is planning the timing of her on-the-job (OJT) training investment over her life cycle. What happens to Jill's OJT investment at every age if:
  - a. The market-determined rental rate for an efficiency unit of human capital ( $R$ ) falls?
  - b. Jill's rate of discount increases?

- c. The government passes legislation delaying mandatory retirement until age 70 (previously it had been age 65)?
  
- 5. Individuals with more education, and those whose occupations require a lot of training, have lower turnover rates than the less skilled. However, once unemployed, on average they remain unemployed for longer periods of time than do the less skilled. Answer the following, considering how the roles of general and specific human capital might differ.
  - a. What might explain the lower turnover rate?
  - b. What might explain the longer period of unemployment?
  - c. Structural unemployment refers to unemployment that is the result of a permanent fall in the demand for the output of a given sector of the economy (and thus a permanent fall in the demand for labor in this sector). The 1970s and 1980s seem to have higher levels of structural unemployment than earlier decades due to the fall in the demand for manufacturing output. Would you expect those who have invested in general human capital and those who invested in specific human capital to be equally affected when structural unemployment is high?
  
- 6. **Answer True, False, or Uncertain and Explain.** The fact that safer jobs are held by high skilled workers implies that the theory of compensating wage differential is wrong. Instead what is occurring is that these jobs are going to high wage people because they are part of the “privileged class.”
  
- 7. **Answer True, False, or Uncertain and Explain.** Suppose people live forever. Then we should see older workers investing in human capital at the same rate as younger workers.