ECO361: LABOR ECONOMICS

SECOND MIDTERM EXAMINATION

April 8, 2013

Prof. Bill Even

DIRECTIONS.

The exam contains a mix of short answer and essay questions. Your answers to the 18 short answer portion of the exam (3 points each) should be listed on the answer sheet attached to the end of the exam. No credit will be given for answers placed elsewhere. Your answers to the essays (60 points total) should be provided in your blue book.

You have until 3:35 p.m. to finish the exam. You may purchase additional time at the price of 5 percentage points per minute.
Consider the two indifference curves drawn below representing the preferences of Jill and Jack, and the budget constraint that they both share.

1. Given the information provided, Mary and Molly both have non-labor income of $_______ and an hourly wage rate of $______.

2. Given the information provided, Molly has a reservation wage that is (greater, less) than Mary’s reservation wage. Molly (will, will not) work and Mary (will, will not) work.
   a. greater; will; will
   b. less; will; will not
   @c. greater; will not; will
   d. less; will not; will

3. According to labor supply theory, if a worker’s wage rate falls, she will
   a. definitely work more hours
   b. definitely work less hours
   @c. work less hours only if the substitution effect dominates the income effect.
   d. work less hours only if the income effect dominates the substitution effect.

4. Suppose that Mary was originally planning on retirement 2 years after the normal retirement age. Now suppose that the Social Security system increases the “delayed retirement credit” which is the increase in Social Security benefits that a person receives for postponing retirement beyond normal retirement age. For Mary, the increase in the delayed retirement credit will result in
   @a. an ambiguous effect on Mary’s retirement age since the wealth effect would cause her to retire sooner but the substitution effect would cause her to retire later.
   a. an ambiguous effect on Mary’s retirement age since the wealth effect would cause her to retire later but the substitution effect would cause her to retire sooner.
a. earlier retirement effect on Mary’s since the wealth effect would cause her to retire sooner but there is no substitution effect
d. later retirement since both the wealth and substitution effect would cause her to retire later.
e. none of the above..
To answer the next 3 questions, suppose that a defined benefit plan provides an annuity at retirement equal to 2 percent * years of service * final salary. Jerry started with the firm at age 25 and would have 30 years of service if he retires at 55, he would receive an annual benefit equal to 60% of his final salary. Assume that Jerry will live until age 80 and would therefore expect to collect 25 years of benefits if he retired at age 55; that there is a zero interest rate; and that his final salary will be $50,000 regardless of when he retires.

5. For the pension to be actuarially fair, it would have to increase the annual benefit by $_____ for postponing retirement from age 55 to age 56.

6. Given the formula described, Jerry would have a greater incentive to postpone retirement from age 55 to 56 if interest rates were (higher, lower) or if his life expectancy was (shorter, longer).
   a. higher; shorter
   b. higher; longer
   c. lower; shorter
   d. lower; longer

7. Suppose that the generosity rate in the above pension was cut from 2.0 to 1.8 percent per year of service. If Jerry had originally planned to retire at age 55, this change in the benefit formula would
   a. lead to later retirement.
   b. lead to later retirement only if the wealth effect dominated the substitution effect.
   c. lead to later retirement only if the substitution effect dominated the wealth effect.
   d. lead to earlier retirement.

8. Suppose John is 70 and has three years to live. If he retires this year, he will receive a benefit of $100,000 per year for 3 years (one payment today, one a year from today, and one 2 years from today). If he retires next year, he will collect benefits for only 2 years (one payment one year from today and one payment 2 years from today). If the interest rate is 5%, how much would his annual benefit have to be increased for postponing retirement by one year in order that the pension be actuarially fair?
To answer the next 4 questions, refer to the diagram drawn below. The indifference curves for worker types X and Y are given by X0, X1 and Y0, Y1. The iso-profit curves for firm types Q and R are given by Q1 and R1.

9. In the above diagram, firms prefer points to the _______ of any given isoprofit curve and workers prefer points to the ____ of any given indifference curve:

   a. southeast; southeast.  b. southeast; northwest.  c. northwest; southeast;  d. northwest; northwest;

10. Based on the diagram above, one can conclude that

   a. for any given level of risk, it is less costly for type R firms to reduce risk than type Q firms.
   b. for any given level or risk, it is less costly for type Q firms to reduce risk than type R firms.
   c. type X workers are more risk averse than type Y workers
   d. both a and c.
   e. both b and c.

11. Based on the above diagram, the best estimate of the value of a statistical life would be:

    a. \((W1-W0)*(P1-P0)\)
    b. \((W1-W0)/(P1-P0)\)
    c. \((W1-W0)/P1\)
    d. \((W1-W0)/P0\)

12. The compensating difference received for increasing risk from P0 to P1 is
@a. an overstatement of the value that type X workers place on the added risk, but an underestimation of the value that type Y workers place on the added risk.
b. an overstatement of the value that type Y workers place on the added risk, but an underestimation of the value that type X workers place on the added risk.
c. an overstatement of the value that type X and Y workers place on the added risk.
d. an understatement of the value that type X and Y workers place on the added risk.

13. If type X workers became more risk averse, we would expect that their indifference curves would become (flatter, steeper) and type R firms would move to a compensation package that included:
a. flatter; lower wages and less risk.
b. steeper; lower wages and less risk.
c. steeper; higher wages and less risk.
d. flatter; higher wages and less risk.
14. Which of the following is TRUE?
   a. over the past 30 years, the private pension system has shifted from defined contribution to defined benefit plans.
   b. if the stock market collapses, workers in a DB plan will experience a larger decline in wealth than workers in a DC plan and thus workers with DB plans will be more likely to postpone retirement.
   c. unlike a DC plan, a DB plan always increases in present value when a worker postpones retirement.
   @d. none of the above.

15. During the 1990s, the returns to education increased
   a. because the demand for low skill workers dropped as the U.S. reduced trade barriers and imports increased.
   b. because there was technological change that increased the demand for more educated workers and decreased the demand for less educated workers.
   c. because unionism declined
   @d. all of the above.

16. Which of the following would increase the after-tax internal rate of return on education?
   a. a decrease in the expected age of retirement.
   b. a decrease in the wages received by a high school graduate.
   c. a switch from a progressive tax system to a flat tax.
   d. all of the above
   e. only b and c.

17. Which of the following is TRUE?
   a. in the U.S., unemployment rates are lower for college graduates than high school graduates.
   b. in China, unemployment rates are lower for high school graduates than college graduates.
   c. the estimated increase in earnings in the U.S. from another year of schooling is approximately 10%.
   d. all of the above.

18. Which of the following is TRUE?
   a. using twins to estimate the returns to education instead of a random sample of people results in a lower estimated return.
   b. evidence suggests that the earnings of high school graduates in a city rises as average education in the city rises.
   c. evidence suggests that the earnings of high school graduates in a firm rises as average education in the firm rises.
   @d. all of the above.
1. (25 points) Consider the isoprofit curve drawn below for a firm. Note that it has a slope of -1. Suppose that all of its workers are identical in their preferences for fringes and wages and that the “optimal” mix of wages and fringes is a $20 wage rate and $10 of fringe benefits per hour.

a. Draw the above isoprofit line and an indifference curve that would imply that the optimal mix of wages/fringes is $20/$10.

b. At the optimal mix of wages/fringe, how much are workers willing to sacrifice in wages for another $1 of fringes? You need not give a precise numerical answer, but you should be able to put a range on the value. **Be sure to use the diagram you drew to quantify your answer.**

c. Suppose the firm changes its mixture of wage/fringe $16/$14. If competing firms still offer $20 of wages and $10 of fringes, will this firm be able to retain its workers with the new mixture of compensation? **Be sure to use your diagram to explain why or why not.**

d. **Use the diagram you drew to illustrate** how much extra the firm would have to pay in total compensation if it provides $14 of fringes and has to compete with firms offering the optimal wage/benefit package of $20/$10.

e. In class, we discussed how – for a worker with a given skill level (e.g. a custodian) -- the fraction of compensation paid in fringe benefits tends to vary with the income of coworkers. Explain the nature of this relationship and describe how federal nondiscrimination rules in fringe benefit coverage could account for this.
2. (25 points) Suppose that an unemployment insurance (UI) system provides a weekly benefit equal to one half of average weekly earnings (AWE) during a specified base period prior to filing for unemployment, but no more than $500 per week. If a person works while collecting UI, they can earn up to 20% of AWE without any reduction in benefits (i.e., there is a 20% earnings disregard). The weekly UI benefit is reduced by $1 for each $1 earned above the cut-off.

a. In your blue book, draw a budget line a hypothetical worker named Chris making the following assumptions:
   - Chris had AWE of $500 prior to the unemployment spell
   - Chris can currently accept a job paying a wage of $10 per hour
   - Chris has $50 of weekly non-labor income (not counting her UI benefit).
   - Hours of leisure can range from 0 to 80 hours per week.

   Be sure to provide the numerical values corresponding to any points (both total income and hours) where there is a change in the slope of the line. Also, label the points where the line intersects the vertical axes for both 0 and 80 hours per week.

b. Suppose that the system is changed so that there is no earnings disregard but for every $1 of earnings, the benefit is reduced by $.50. Illustrate how this affects the budget line by drawing a new “dashed segment” on top of the budget line you drew for part a. Label all the critical points on the new budget line.

c. Suppose that Chris did not work under the old scheme. Is she more or less likely to work under the new scheme? Explain with reference to the relevant income and/or substitution effects.

d. Suppose that Chris earned exactly 20% of the AWE under the old scheme. Indicate where her work hours would be on the original budget line by labeling it as point D. Is she likely to work more or less hours under the new scheme? Explain with reference to income and/or substitution effects.

e. Suppose that Chris earned just enough under the old scheme to wipe out her UI check. Indicate where her work hours would be on the original budget line by labeling it as point E. Is she likely to work more, less or the same number of hours under the new scheme? Explain with reference to income and/or substitution effects.
3. (10 points) Some commentators argue that businesses are profit-maximizing and ignore the risks that they expose their workers to.

a. Explain why profit-maximizing firms may find it profitable to reduce risk for their workers.

b. Give two examples of situations where firms may have “too little” incentive to reduce risk from the perspective of what is socially optimal from an economic perspective.
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