

- The duration of the exam is 1 hour 20 minutes.
- The exam consists of 8 problems and it is worth 100 points. The extra credit problem will only be counted if you lose points on other problems.
- Please write in the space provided. If necessary, write on the back of the page.
- Please ask me if you have any questions.
- To receive full credit you have to carefully explain all your answers and show all your work.

*General advice: If you get stuck in the early parts of a problem, do not stop there. You can receive substantial partial credit by explaining how you would solve the rest of problem if you had the necessary answers from its previous parts.*

1. (15 points) Determine whether each of the statements is true or false:
  - a. Moral Hazard leads the insured to consume less than efficient amount of health care.
  - b. The cost-benefit analysis of a new construction project should take into account the benefits to local economy due to increased employment.
  - c. Younger generations generally gain less from Social Security System than older generations.
  - d. The current early retirement age in the United States is 62 years.
  - e. Government should provide education because it increases the productivity of those who gets education.



c. Suppose that an insurance company has no way of differentiating among people of different types so that it has to charge the same premium to everyone – average of the insurance premiums for two types of drivers. Would a 'risky' person decide to buy this insurance? What about 'safe' person? (If you were unable to answer part (a) assume that the common premium is equal to \$60).

d. Explain the concept of adverse selection using the answers in part (b).

5. (10 points) Name at least two arguments in favor of educational vouchers and at least three arguments against school vouchers.

6. (10 points) Suppose that a project yields annual benefit of \$100 a year starting next year and continuing forever. The project costs \$500 now and \$200 next year. The relevant interest rate is 5%. Should this project be undertaken? (hint: the infinite sum can be calculated as  $r+r^2+r^3+\dots=r/(1-r)$ ).
7. (20 points + 5 extra credit) Dave is maximizing his utility by choosing how many hours to work a week. Dave's labor supply  $LS$  can be calculated by deducting his leisure consumption  $L$  from total number of hours available to him in a week:  $LS=7*24-L=168-L$ . His wage rate is \$4/hour.
- Sketch Dave's budget line. Make sure you label the axes and the points where the budget intersects axes. What is the slope of the budget line?
  - Now suppose that government introduces a welfare program, which has the following benefit level  $B=G-t*w*LS$ ; where  $B$  is the benefit level,  $G$  is the basic grant equal to \$100,  $t$  is the benefit reduction rate equal to 0.5, and  $w$  is the wage rate, and  $LS$  is the labor supply. How many hours Dave

has to work to reduce his benefit to zero and how much money would he earn in this case? What is the slope of the budget line? Sketch Dave's new budget, labeling all points.

- c. Do you think that this program introduces disincentives to work for Dave? If so, name at least two ways to deal with this problem.

- d. (5 points – extra credit) Assume that Dave's preferences for leisure  $L$  and consumption of all other goods  $C$  are given by  $U = C^{1/2}L^{1/2}$ . The price of consumption of other goods  $P_C$  is \$1. Dave's optimal consumption of leisure can be computed according to the following demand function  $L^* = (1/2)(I/w)$ , where  $I$  is his income. Dave's consumption  $C$  is equal to  $C^* = (1/2)(I/P_C)$ . Is Dave going to enroll in this welfare program? Show all your work.

8. (5 points) Explain why the first generation to receive Social Security benefits in the United States gained the most from it.