# Economics 500: Microeconomic Theory
State University of New York at Binghamton
Department of Economics
Fall, 2004

Problem Set #5

1. Suppose the federal government wants to support education but must not support religion. To this end, it gives Christian Brothers High School $2 Million with the stipulation that this money be used for secular purposes only. The graph below shows Christian Brothers pre-federal-gift budget constraint and best attainable indifference curve over secular and non-secular expenditures. How would the High School's welfare differ if the gift came without the secular-use restriction? Draw graphs of both scenarios and state your assumptions.
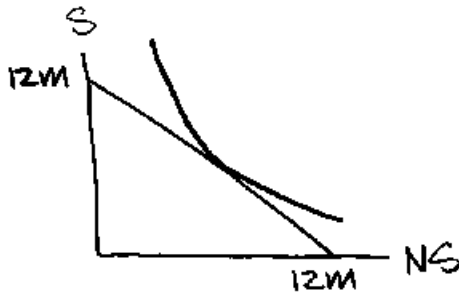
2. Discuss two criticisms of the claim that the satisfaction of preferences is the same as "well-being." Discuss two policy areas wherein these two criticisms might be used to argue against the policy prescriptions of economists.

3. Use models of asymmetric information to explain the following:
    a. What would happen to the market for auto insurance if the state of New York passed a law making it illegal for insurance companies to charge different premium rates to individuals based on the neighborhood in which they live?
    b. Why do health insurance policies typically have deductibles (i.e., stipulations that require the insured to pay some of the cost of an accident or illness)?

4. Smith lives in a world with two time periods, this period and next period. His income in each period, which he receives at the beginning of each period, is $210. If the interest rate, expressed as a fraction, is 0.05 per time period, what is the present value of his lifetime income? Draw his intertemporal budget constraint. On the same axes, draw Smith's intertemporal budget constraint when r = 0.20.

5. Suppose that from the last minute you devoted to problem 10 on an exam you earned 2 extra points, while from the last minute you devoted to problem 8 you earned 4 extra points. The total number of points you earned on these two questions were 8 and 6, respectively, and the total time you spent on each was the same. How - if at all – should you have reallocated your time between them?

6. Offer an example of both adverse selection and moral hazard in consumption. Discuss the related impact on market outcomes of each of these examples.

7. When there is asymmetric information regarding how hard workers work, equilibrium in the labor market may contain efficiency wages and involuntary unemployment. Explain. Why don't firms reduce wage they pay workers in response to the excess supply of labor?

8. Suppose there are two types of workers, high-ability and low-ability workers. Workers' wages are determined by their ability – high-ability earn $50,000 per year, low-ability earn $30,000. Firms cannot measure workers' abilities but they can observe whether a worker has a high school diploma. Workers' utility depends on the difference between their wages and the costs they incur in obtaining a diploma.
    a. If the cost of obtaining a high school diploma is the same for high-ability and low-ability workers, can there be a separating equilibrium in this situation in which high-ability workers get high-wage jobs and low-ability workers get low wages?
    b. What is the maximum amount that a high-ability worker would pay to obtain a high school diploma? Why must a diploma cost more than this for a low-ability person if having a diploma is to permit employers to identify high-ability workers?

9. A high-pressure life insurance salesman was heard to make the following argument: "At your age a $100,000 whole life policy is a much better buy than a similar term policy. Under a whole life policy you'll have to pay $2,000 per year for the first four years, but nothing after. A term policy will cost you $400 per year, essentially forever. If you live 35 years, you'll pay only $8,000 for the whole life policy, but $14,000 for the term policy. Surely, the whole life is a better deal." Assuming the salesman's life expectancy assumption is correct, how would you evaluate this argument? Specifically, calculate the present discounted value of the premium costs of the two policies assuming the interest rate is 10 percent.