Cameron  ECON 132 (Health Econ): SAMPLE SECOND MIDTERM EXAM Spring 15

Answer all questions in the space provided on the exam.
Total of 36 points (and worth 22.5% of final grade).
Read each question carefully, so that you answer the question.

Short Answer (6 points each question)

1. The cost-effectiveness of influenza vaccination is well established for persons aged 65 years and older. A study in the October 4 2000 issue of the Journal of the American Medical Association considered cost-effectiveness and cost-benefit for healthy adults less than 65 years old. A randomized experiment was run. The treatment group received an influenza vaccination, while the control group received a placebo. Any favorable benefits of influenza vaccination last only for one flu season (a year).

We consider the costs and benefits of influenza vaccination for 1,000 adults when per person
- The cost of vaccination (including lost work time) is $25.
- The cost of influenza illness (including lost work time) is $200.
- Influenza vaccination reduces the probability of getting influenza from 0.24 to 0.14.

(a) Perform a cost-benefit analysis of influenza vaccination. Does it favor vaccination?

(b) What is the cost of influenza vaccination per case of flu avoided?

(c)(i) Give a verbal definition of a QALY.

(ii) What is the advantage of using QALY’s compared to cost-benefit analysis?
2. (a) On an appropriate diagram show the welfare loss due to moral hazard of moving from 50% coinsurance to free health care.

(b)(i) How, if at all, does Obamacare attempt to reduce adverse selection in the Health insurance exchanges?

(ii) How, if at all, does Obamacare attempt to have employers continue to provide health insurance to their employees?

(c) Give the advantages (if any) and disadvantages (if any) of a Bronze Plan compared to a Silver Plan under Obamacare.

3. Circle True or False to each of the following statements about the U.S. [One point each.]

(a) True False Economic theory show that the optimal health insurance policy for a risk-averse person is one with complete insurance.

(b) True False R&D expenditures and drug production costs combined account for over 75% of pharmaceutical company revenues.

(c) True False The analysis of the six stool Guaiac test shows that it is better to not screen at all than to perform six Guaiac tests.

(d) True False A good way to determine the value of life for health policy analysis is to use the present discounted value of future earnings.

(e) True False A QALY league table gives the weights used in calculating QALY’s.

(f) True False The original impetus of licensing of doctors in the U.S. (the Flexner report) was to improve doctor quality.
4.(a) Consider the paper by Cutler and McClellan “Is Technological Change in Medicine Worth It”
(i) Did the paper rely on cost-benefit analysis or on cost-effectiveness analysis?

(ii) What was the conclusion of the paper?

(b)(i) On an appropriate diagram(s) show why a profit-maximizing pharmaceutical company may sell a patented drug for different prices in different countries, even if the cost of production is the same regardless of the country.
(ii) Given your answer in part (i), how does the country that pays a higher price differ from the country that pays a lower price?

(c) Data from a clinical trial found that a drug successfully treated a disease for 0.44 (or 44%) of people treated with a standard error of 0.04 whereas the placebo was successful for 0.30 of people who received the placebo with a standard error of 0.03. Is the difference statistically significant at significance level 5 percent? Show your working.
[Note: $t = \frac{[m_1 - m_2]}{s}$ where $m_1$ and $m_2$ are sample means and $s$ equals the square root of $(s_1^2 + s_2^2)$. The critical value for a two-sided test is 1.96.]

5.(a), (b), (c) Actual Midterm Exam will include a fifth question
Multiple Choice (1 point each)  Note: You should spend 15-20 % of time on these!

1. Insurance plans that seek to reduce the moral hazard problem include
   a. HMO
   b. High deductible health plan
   c. both a. and b.
   d. neither a. nor b.

2. The biggest moral hazard problem is
   a. ex post
   b. ex ante
   c. they are similar problems in magnitude
   d. neither is a problem.

3. Most pharmaceutical drug discoveries fail to lead to a marketable drug due to
   a. abandonment before reaching Phase III trials
   b. abandonment due to failure during Phase III trials
   c. abandonment for economic reasons despite success during Phase III trials.

4. FDA approval of pharmaceutical drugs today is
   a. more difficult than before 1965
   b. easier than before 1965
   c. similar to before 1965.

5. If surgery is successful with probability 0.8 and a person lives five years and is unsuccessful with probability 0.2 in which case the person lives 0 years then we expect the person to live
   a. one year
   b. two years
   c. three years neither a. nor b.
   d. four years
   e. none of the above.

6. Using voluntary purchase of fire detectors in a home to determine the statistical value of a life is an example of
   a. willingness to pay
   b. willingness to accept
   c. neither of the above.