

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.

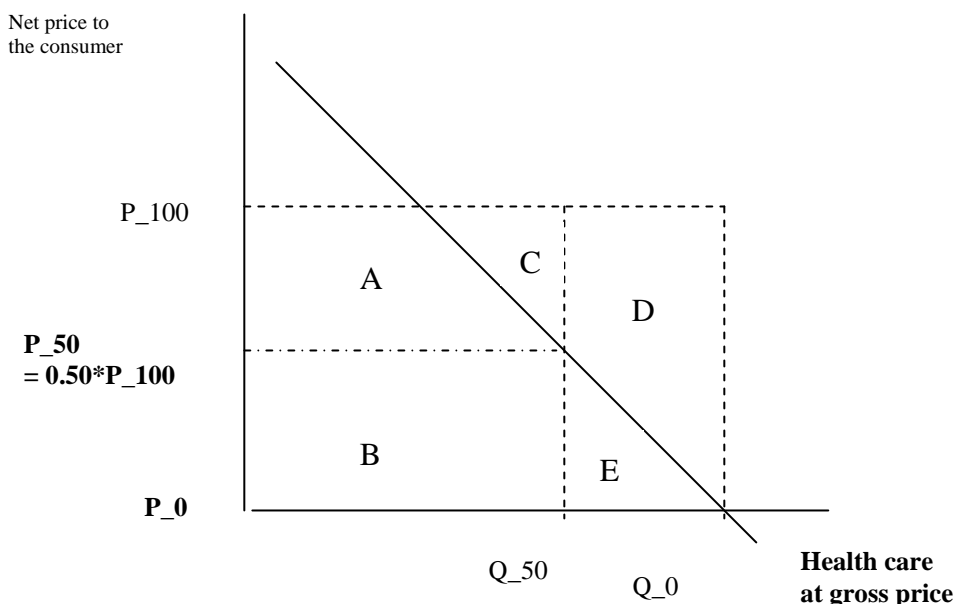
Short Answer (6 points each question)

1.(a) Compare no health insurance to a health insurance policy with 50% coinsurance.

(i) The change in total medical expenditures due to insurance is given by which combinations of areas A, B, C, D and E?

(ii) Compare no health insurance to a health insurance policy with 50% coinsurance.

The welfare loss due to moral hazard is given by which combinations of areas A, B, C, D and E?



(c) According to the article by Pauly on “The Economics of Moral Hazard: Comment”

Circle True or False

(i) **True** **False** Moral hazard is a result of rational economic behavior.

(ii) **True** **False** At an economic optimum all people will purchase health insurance.

(c) Suppose going from insurance with an effective coinsurance rate of 20% to free care leads to health expenditures changing from \$2,000 to \$3,000. Calculate the arc price elasticity of demand.

2. Circle True or False to each of the following statements about the U.S. health market in 2007.

[One point each.]

- (a) **True** **False** Health expenditure in 2007 exceeded \$5,000 per capita.
- (b) **True** **False** Since 2000 health expenditures have increased in real dollars, though have not increased as a fraction of GDP.
- (c) **True** **False** Hospital care and physicians combined account for over one-half of health expenditures.
- (d) **True** **False** Health expenditures are mostly made through third parties.
- (e) **True** **False** Private insurance (Blue Cross / Blue Shield) was established in the 1960's.
- (f) **True** **False** Over two-thirds of the uninsured are young adults (18-34 years).

3. Susan believes she faces health costs in the current year of either \$2,000 with probability 0.8 or \$12,000 with probability 0.2.

(a) What is the mean and variance of the distribution of health costs faced by Susan? Explain your answer.

(b) Suppose an insurance company sells insurance to 100 people who face the same distribution of health costs as does Susan. What range of values do we expect the average loss to lie in with probability 0.95?

(c) Provide two fundamental differences between Medicare and Medicaid.

4.(a) Suppose George is risk-averse and faces a gain of 100 with probability 0.5 and a gain of 200 with probability of 0.5. On an appropriate diagram show George's well-being.

(b) On the same diagram show George's well-being if he could instead receive with certainty an amount equal to his expected gain.

(c) State **two factors** (other than insurance premium and expected losses) that determine the size of the benefit to an individual of insuring against risks.

5.(a) Suppose the immunization rates of HMO and FFS plans are, respectively, 0.72 and 0.80, with standard errors of, respectively, 0.04 and 0.03. Is the difference between the population mean immunization rates of the HMO and FFS plans statistically significant at 5 percent?

[Hint: $t = (m_1 - m_2) / \sqrt{s_1^2 + s_2^2}$ where m denotes sample mean and s denotes standard error]

(b) Define the acronyms PPO and HMO and state one essential difference between the two.

(c) What group (consumers, firms, government, doctors, ...) instigated the movement from FFS to managed care, and why did they do so?

Multiple Choice (1 point each) Note: You should spend 15-20 % of time on these!

1. Suppose Susan has an insurance policy with deductible of \$1,000 and coinsurance of 20%. Then for medical expenses of \$3,000 she will need to pay

- a. between \$0 and \$499
- b. between \$500 and \$999
- c. between \$1000 and \$1499
- d. more than \$1500

2. Senator McCain proposes eliminating tax deductibility of employer-provided health insurance and replacing this with a direct credit to the individual of up to \$5,000 per family. The intent of this policy is to encourage individuals to shop more wisely for health insurance, especially considering price. If this leads to more individuals choosing high deductible health plans and less employer-provided insurance then this policy can be expected to

- a. reduce moral hazard
- b. reduce adverse selection
- c. both a. and b.
- d. neither a. nor b.

3. Senator Obama proposes providing greater financial incentives to employers to provide health insurance and offering subsidized insurance to those without access to employer-provided insurance. If this leads to more individuals with insurance and no effect on the employer-provided insurance market then this policy can be expected to

- a. reduce moral hazard
- b. reduce adverse selection
- c. both a. and b.
- d. neither a. nor b.

4. The article by Pauly showed that

- a. risk-averse people may choose not to buy full health insurance at actuarially fair prices
- b. there is a welfare loss due to moral hazard (that Arrow in his earlier paper neglected)
- c. both a. and b.
- d. neither a. nor b.

5. The Rand study (the 1987 paper) established that for typical health insurance plans

- a. moral hazard is small (i.e. leads to a small welfare loss)
- b. moral hazard is large but less than the benefit of risk reduction
- c. moral hazard is large and exceeds the benefit of risk reduction
- d. moral hazard is large and may or may not exceed the benefit of risk reduction

6. The Miller and Luft study established that

- a. quality of care in FFS substantially exceeded that in HMO
- b. use of resources in FFS substantially exceeded that in HMO
- c. both a. and b.
- d. neither a. nor b.