Econ 339 - Health Economics
Fall 2013
Final Exam- Version A: **Name:** _____

Answer all questions. Good luck!

Short Questions

1. (2 points) Suppose in a given country that the expected life span is 75 years. Health policy-makers increase health care spending by 10% and the life span decreases to 73.5 years. The elasticity of life span with respect to health care spending is:
   E_{life} =_____

2. (2 points) Asymmetric information means that:

   (a) providers and clients have no information.
   (b) providers and clients have the same information.
   (c) providers and clients have different information.
   (d) clients have no information.

3. (2 points) Introducing health insurance _____ the price elasticity of demand by _____ the out-of-pocket cost.

   (a) decreases; decreasing.
   (b) increases; decreasing.
   (c) decreases; increasing.
   (d) increases; increasing.

4. (2 points) If the price elasticity of demand for visits is -0.14, then a 18% increase in price leads to a _____% increase/decrease in quantity demanded.

5.

6. (2 points) According to Grossman's health capital model, the optimal amount of health capital _____ when the market interest rate _____.

   (a) decreases; increases
   (b) increases; increases
   (c) decreases; decreases
   (d) does not change; decreases

7. (2 points) Introducing a **coinsurance** rate into a full insurance contract that has **no** coinsurance rate _____ the price elasticity of demand by _____ the out-of-pocket cost.

   (a) decreases; decreasing.
   (b) increases; decreasing.

(c) decreases; increasing.

(d) increases; increasing.

8. (2 points) Moral hazard refers to:

   (a) illegal behavior by insurers.

   (b) illegal behavior by consumers.

   (c) consumers' choosing particular plans based on their health statuses.

   (d) behavior that consumers engage in because they are insured.

9. (2 points) Calculate the fixed annual growth rate in health spending in a country where health spending in 1995 was \$3 *billion* and spending in 2011 was \$6.55 *billion*:

   ——————————————————————

10. (2 points) The elasticity of income measures:

    (a) the rate at which demand changes in response to a change in market prices.

    (b) the percentage change of income in response to a demand change.

    (c) the rate at which demand of a good changes in response to a change in income.

    (d) the rate at which income changes in response to a change in the price of a good.

Short answer question – use diagrams.

1. **Demand - Supply (22 points)**
   An individual with a demand function for podiatric care of the form $Q = \frac{30}{2} - \frac{1}{2}P$ faces a supply curve of $P = 2.0 + 0.75Q$. Podiatrists are medical specialists of the foot, ankle and lower leg.

   (a) **(10 points)** What are the quantity demanded and the price paid by the individual? If the individual were to buy a health insurance policy with 15% coinsurance

   (b) **(6 points)** What would be the quantity demanded? Draw a detailed graph!

   (c) **(3 points)** Calculate the deadweight loss due to insurance.

   (d) **(3 points)** If the coinsurance rate is zero, calculate the quantity of health care delivered to the patient. What is the deadweight loss in this situation. Is it smaller or larger than the deadweight loss with the co-insurance rate of 15%. Explain why!

2. **Uncertainty and Health Insurance (25 points)**

Bob earns $\$70,800$. In the next year he faces a 25% chance of having an accident with his speed boat that will cost him $\$50,000$. There are two insurance companies in the market. The first insurance company offers a full-insurance package for only: $\$16,500$, the second insurance company offers a partial-insurance package with a 30% coinsurance rate and a \$500 deductible for only $\$7,000$. Bob values his wealth according to the following utility function: $U(Wealth) = \sqrt{Wealth}$.

1. (a) **(10 points)** Calculate the actuarially fair premium for the full insurance contract. What is the risk premium and what is Bob's total willingness to pay for full insurance? Draw a detailed graph, and explain all terms in detail.
   (b) **(3 points)** Calculate the expected utility for no insurance
   (c) **(3 points)** Calculate the expected utility for insurance 1.
   (d) **(4 points)** Calculate the expected utility for insurance 2.
   (e) **(2 points)** What insurance, if any, should Bob buy?
   (f) **(3 points)** Briefly describe two examples of adverse selection.

Table 7 The impact of highest grade completed on health behaviors, models with and without PIAT: cross section of individuals with uninterrupted schooling between 1997 and 2002

	Smoker		Cigarettes/day		Cigarettes/day among smokers		One pack/day		Heavy drinker	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Months Attended-Ever	−0.005***	−0.005***	−0.056***	−0.054***	−0.095**	−0.102**	−0.001**	−0.001**	−0.000	−0.000
	(0.001)	(0.001)	(0.013)	(0.014)	(0.042)	(0.043)	(0.000)	(0.000)	(0.001)	(0.001)
Health knowledge	0.063*	0.072**	0.473	0.502	2.360	2.242	0.001	0.000	−0.028	−0.028
	(0.034)	(0.035)	(0.306)	(0.308)	(2.004)	(1.996)	(0.012)	(0.012)	(0.027)	(0.027)
PIAT		−0.001**		−0.002		0.008		0.000		0.000
		(0.000)		(0.002)		(0.009)		(0.000)		(0.000)
Observations	2,228	2,228	2,228	2,228	380	380	2,228	2,228	2,225	2,225

Months Attended-Ever stands for total months of schooling obtained as of the survey date. PIAT is the individual's percentile score in the math section of the PIAT test. See notes to Table 3

Table 8 The impact of highest grade completed on health behaviors, models with and without PIAT: cross section of individuals with interrupted schooling between 1997 and 2002

	Smoker		Cigarettes/day		Cigarettes/day among smokers		One pack/day		Heavy drinker	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Months Attended-Ever	−0.003**	−0.003*	−0.077***	−0.072**	−0.139***	−0.135***	−0.002**	−0.002**	−0.001	−0.001
	(0.002)	(0.002)	(0.030)	(0.029)	(0.050)	(0.051)	(0.001)	(0.001)	(0.001)	(0.001)
Health knowledge	0.036	0.051	−1.925	−1.755	−6.274*	−6.158*	−0.016	−0.013	−0.031	−0.027
	(0.070)	(0.069)	(1.263)	(1.255)	(3.389)	(3.393)	(0.032)	(0.032)	(0.040)	(0.040)
PIAT		−0.001**		−0.014**		−0.007		−0.000		−0.000
		(0.001)		(0.006)		(0.014)		(0.000)		(0.000)
Observations	996	996	996	996	337	337	996	996	995	995

Months Attended-Ever stands for total months of schooling obtained as of the survey date. Piat is the individual's percentile score in the math section of the PIAT test. See notes to Table 3

Figure 1:

3. Health behavior: **(20 points)**

   (a) In table 7 we present regression results of the form

$$\begin{aligned}\Delta H_{it} &= \gamma_1 \Delta \text{Education}_{it} + \gamma_2(\Delta \text{Education}_{it} \times \text{Learning Disability}) \\ &\quad + \gamma_3 \Delta \text{Health Knowledge}_{it} + \Delta X_{it}\Gamma_4 + \varepsilon_{it}\end{aligned}$$

   Please explain what this equation/regression describes. (5 points)

   (b) Interpret the numbers in column (1) (2.5 points)

   (c) Explain the difference in the numbers in column (1) of table 7 and column 1 of table 8 (2.5 points).

   (d) Using the Grossman health capital model, compare the health status of a person with 10 years of schooling vs. a person with 15 years of schooling. Use a graph in order to make your case and to get full points. (10 points)

4. **U.S. Health Care Reform (15 points)**

   (a) (4 points) Name 4 of the 6 gimmicks that according to Douglas-Holtz Eakin make the Obama health care reform cheaper than it really is according to his calculations:

      1. _____
      2. _____
      3. _____
      4. _____

   (b) (2.5 points) Explain two of the above in more detail.

   (c) (2.5 points) The ACA establishes an insurance mandate. Explain what that is and how it is enforced.

   (d) (3 points) Discuss why the insurance mandate is 'good'.

   (e) (3 points) Discuss why the insurance mandate is 'bad'.