

Written Exam for the M.Sc. in Economics summer 2011

Health Economics

Master's Course

June 21, 2011

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by “eksamen på dansk” in brackets, you must write your exam paper in Danish.

If you are in doubt about which title you registered for, please see the print of your exam registration from the students' self-service system.

This exam consists of three essay problems. Each problem has approximately equal weight in the final grade. A problem consists of two sub-questions that do not necessarily have equal weight. All answers must be explained.

The problem set consists of 3 pages (including this cover page).

Problem 1 (Health insurance).

In an attempt to reduce government spending on healthcare it has been proposed that injuries and diseases which are inflicted as a result of recreational activities (sports, cultural events etc.) will not be covered by free healthcare services, but should be paid by the patients themselves.

1.1. Give a suggestion as to how it can be determined what the patients should pay for treatment in hospital and with the practicing doctor.

It is further proposed that a government insurance scheme should be created to cover patients' cost. Participation in the insurance scheme should however be voluntary, and the premia to be paid should cover the cost of the scheme.

1.2 Give an explanation of the specific problems to be faced by such insurance schemes due to asymmetric information. How should the insurance contracts be formulated to reduce such problems as far as possible.

Problem 2 (The Grossman model).

2.1 Give a brief description of the Grossman model of optimal choice of consumption and health over the lifetime.

It has been designed by government to set aside a given sum of money for improving health conditions in society. It is proposed that the money is used for paying a bonus to all individuals which achieve satisfactory levels of BMI and participate in a designated number of outdoor activities.

2.2. Give an assessment of this proposal in the light of the Grossman model.

Problem 3 (Rationing access to life-saving care)

Imagine that you are an advisor for a decision maker responsible for health care decisions. Your task is to advise the decisions maker in formulating a general principle for rationing access to life-saving treatment in situations where there are not enough resources to treat everybody, based on your (limited) knowledge about the social preferences of the decision maker.

In order to gain some knowledge about the social preferences of the decision maker, you have faced her with 3 hypothetical dilemmas (Cases A-C below). Her preferred options are marked with "X" in each of the three tables below.

In each dilemma, two patients in a specified age and health state both suffer from an acute life-threatening disease. The disease is unrelated to their health state. The disease can be treated but the decision maker has only resources for treating one of the patients.

If a patient is not treated, he will die immediately. If a patient is treated, he can expect a specified amount of additional life years (in unchanged health state).

Note that in this exercise all health states are "chronic", i.e. treatment will give more life years but it will not change the health state of the patient as described by EQ-5D system.

3.1 Discuss if the social preferences of the decision maker, as revealed from the hypothetical choices below, could be in conflict with relevant fairness or efficiency concerns.

3.2. Define a population health evaluation function (= “health-related social welfare function”) for assessment of health distributions in a society with n persons, which is compatible with the decision maker’s choices below. Discuss the model and consider some variations.

Case A

	Health state	Current age	Gain from treatment (expected)
Patient A1	No health problems	40 years	5 years
Patient A2	Confined to bed. Unable to wash or dress self. Unable to performing usual activities (e.g. work, studies housework). Moderate pain or discomfort. Moderately anxious or depressed.	40 years	5 years

Choose which patient to treat (mark with “X”):

Patient A1: X Patient A2: Indifferent / flip a coin:

Case B

	Health state	Current age	Gain from treatment (expected)
Patient B1	No health problems	30 years	15 years
Patient B2	No health problems	40 years	20 years

Choose which patient to treat (mark with “X”):

Patient B1: Patient B2: X Indifferent / flip a coin:

Case C

	Health state	Current age	Gain from treatment (expected)
Patient C1	No health problems	50 years	10 years
Patient C2	No health problems	70 years	10 years

Choose which patient to treat (mark with “X”):

Patient C1: Patient C2: Indifferent / flip a coin: X