

Written Exam for the M.Sc. in Economics

Health Economics

Master's Course

Re-exam, August 18, 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).

A country with a predominantly public system of healthcare, which however does not cover immigrants, has introduced a voluntary health insurance scheme for the latter; the scheme must satisfy the community rating principle in the sense that the premium should be the same for all. It turns out that immigrants from countries with poor health conditions have a higher risk of illness, but at the same time these immigrants are much less risk averse than the immigrants from countries with good health conditions.

1.1 Give an assessment, based on the theory of health insurance, of how this situation may affect the number of immigrants holding a health insurance, and describe the general consequences.

It is proposed that the insurance scheme should have a premium which is common for all but a deductible which depends on country of origin.

1.2 Will such a scheme constitute an improvement of the previous one?

Problem 2 (Economic evaluation of health care programmes and the Burden of Disease).

The methods of Cost-Benefit Analysis (CBA), Cost-Effectiveness Analysis (CEA) and Cost-Utility Analysis (CUA) have been developed for economic evaluation of health care programmes.

2.1. Explain the three methods. Give examples of situations where each method seems particularly suitable. Discuss the (ethical and practical) limitations of each method.

Burden of Disease (BoD) concepts, like the DALY model, have been developed to measure the gap between a population's health status and some reference standard.

2.2. Describe some specific methods for measuring Burden of Disease (BoD). Discuss what such Burden of Disease models can be used for.

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 decision 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. **Please carefully take notice of the choices.**

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	75 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.	75 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	40 years	20 years
Patient B2	No health problems	50 years	25 years

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

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

Case C

	Health state	Current age	Gain from treatment (expected)
Patient C1	No health problems	55 years	15 years
Patient C2	No health problems	70 years	15 years

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

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