

Health Economics: Questions for exam

Problem 1 (Methods for economic evaluation of health care programmes and measuring Burden of Disease). Health economists often distinguish between the methods of Cost-Benefit Analysis (CBA), Cost-Effectiveness Analysis (CEA) and Cost-Utility Analysis (CUA).

1.1. Explain what health economists mean by each of the three above-mentioned methods. Discuss circumstances under which each of the three types of methods seem particularly (in)appropriate for economic evaluation of health care programmes. You may use real-life or hypothetical examples.

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

1.2. Describe some specific methods for measuring Burden of Disease (BoD). Discuss whether such BoD measures also can be used for economic evaluation of health care programmes (and, if so, how this would relate to the methods discussed in **1.1**).

:Hints for solutions

For **1.1**, the textbook background is ZBK 2.2. For **1.2** the background material is the article Gold et al. 2002 or the week 14 lectures handouts on Measuring the Burden of Disease.

1.1. Cost-benefit analysis (CBA): All costs and benefits valued in monetary units. CBA can be used to evaluate a single project. We accept the project if (and only if) it has positive benefit. Cost-effectiveness analysis (CEA): Cost and effect measured in different units. For example, cost measured in Danish Kroner and benefit in life years gained. CEA can be used to compare two (or more) mutually exclusive projects (under certain assumptions, see below). For example if project 1 is characterized by cost C_1 and effect E_1 and project 2 is characterized by cost C_2 and effect E_2 then select project 1 if

$$\frac{C_1}{E_1} < \frac{C_2}{E_2}.$$

If the effectiveness measure E is interpreted as a utility (in this context it would typically be a QALY measure) then CEA is sometimes referred to as Cost-Utility Analysis (CUA).

Real-life or hypothetical examples along these lines could be given. We refer to the textbook for a discussion of ethical and practical limitations/advantages of the methods.

1.2. Examples of measures of burden of disease. Life years based measures: Years of Life Lost (YLL), Potential Years of Life Lost (PYLL), and Expected years of life lost (EYLL). Life years taking quality of life into account: Health Adjusted Life Expectancy (HALE) (similar to Disability Adjusted Life Expectancy (DALE)), Disability Adjusted Life Years (DALY). The measures can be used (and indeed are being used) for economic evaluation of health care programmes, when considering gains or losses in an appropriate measures of burden of disease associated with a given intervention to be evaluated. Some specific aspects of the burden of disease methods, like use of

age-weighting in the DALY model, complicates the comparisons to models in 1.1 and may have as a result that they do not give the exactly equivalent results.

Problem 2. In countries with private and voluntary health insurance, the principle of *community rating* means that the insurance companies are not allowed to charge a premium which differs among the costumers according to their health conditions.

2.1. Explain why this principle may lead to a situation where a considerable part of the population chooses not to have health insurance.

2.2. Give a suggestion as to how a monopolized health insurer can achieve that the whole population chooses to have insurance. What will happen if there is competition among several insurance companies?

2.3. In the US health insurance reform of 2010, every individual is entitled to get an insurance contract, with possible government subsidy if it is not profitable for the private companies. Discuss the consequences for the insurance market of the reform.

Hints for solution

The textbook background is either ZBK 5.3 or the lecture note on Health Insurance. Community rating has the same effect as asymmetric information about the types of the individuals to be rationed.

1.1. This is the standard Rothschild-Stiglitz model. Risk averse individuals want insurance, but since they have different risks, the low-risk individuals are not willing to pay the premium which is needed to reimburse average loss. Consequently an equilibrium is found where some low-risk individuals choose not to insure.

1.2. A monopolistic insurer can use price discrimination, offering the individuals different combinations of premium and deductible. High-risk individuals will prefer low or no deductible even at a high premium whereas low-risk individuals prefer low premium and accept a deductible.

Competition between several insurers may result in a situation, where the separating contracts described above, are upset by insurers offering the most advantageous costumers a better deal, and this may upset the insurance market in the sense that no equilibrium (in traditional sense, where every individual chooses the best for her type and no competitor can earn money on offering another contract) exists.

1.3. The problems to be expected are connected with the tendency towards cream-skimming of the existing private insurance companies. This will leave the high risk groups with no available insurance, and in order to make the insurance companies take on this costumers, government will have to pay subsidies.

Problem 3. In the debate about healthcare and its financing one often hears about the Samaritan principle as a basic reason for a tax-financed healthcare system.

3.1. Give an explanation of the Samaritan principle in terms of economic externalities, and explain how this should be dealt with according the the economic welfare theory.

3.2. In an attempt to reduce government spending on healthcare, it is decided to single out areas of healthcare where the Samaritan principle is either not working

or not important. Give some suggestions for such areas of healthcare, as well as suggestions for how they are to be financed.

3.3. If healthcare is to be based on a system of Medical Savings Accounts (as in Singapore), how can the Samaritan principle be incorporated?

Hints for solution

The background literature is ZBK ch.5 or the lecture note on welfare theory in health economics.

3.1. The Samaritan principle is a case of positive external effects in consumption, where there the utility of healthy consumers is influenced by the treatment of other consumers (having caught a disease). In general, the economic theory treats internal effects either by (Pigovian) taxation or by introduction of artificial (Arrowian) commodities.

3.2. Areas of healthcare where there are no externalities (or they are unimportant), so that it is generally considered as an individual matter whether treatment is given or not. This in its turn depends on the general attitudes in the population, at present the most obvious case is dental care. Financing of such areas might be through private insurance.

3.3. With MSAs, the basic problem is that there is no inducement to use the account for a treatment to which society puts a higher value than the individual concerned (which of course is not often the case but still may happen). If the illness is observable, it is possible to introduce a withdrawal from the account corresponding to the treatment independent of whether or not treatment has actually occurred. If the illness is not observable, it may be questioned whether it would have much impact on society's wellbeing.