

Question 1 (25 %):

Explain the following concepts;

(a) Loading costs

The loading costs associated with running an insurance company are costs that are associated with marketing, administration, premium setting, claim processing etc. Such costs are normally increasing with the number of policy holders, and, the size of such costs will impact the price of insurance (premiums).

The presence of loading costs will imply that actuarially fair premiums will not exist. A consequence might be that some risk-averse individuals will not purchase insurances.

The concept of loading costs can also be discussed in relation to the income-expenses equality for an insurance company (see below), where l here refers to the loading cost share.

$$PR + RI = PROFIT + (1+l)(1-c)(Wg - Wb)$$

(b) Risk-pooling

The diversification of risk among a group of individuals or firms.

The role of diversification will typically lie with insurance companies.

The diversification builds upon “the law of large numbers” – given an event that occurs with probability $(1-p)$ for each of N individuals (firms), the probability for such an event will approach $(1-p)$, when N is increasing. However, an important assumption is that the probability of each individual (firm) must be independent across individual (firms).

For a large group, this means that we arrive at a stable and predictable outcome (at an aggregate level the risk will be eliminated), however the individual must sacrifice a small amount on a regular basis in return for the elimination of the risk.

It is not very relevant to discuss the role of risk-adjusted premiums nor to discuss the possibility of adverse selection, when we are concerned with explaining risk-pooling.

(c) Price-elasticity

A price-elasticity refers to “the percentage change in the demand for a good or service, given a one percent change in the price of a good or service. Price -elasticities can be direct (the demand for X , given a change in the price of X) or indirect (the demand for X , given a change in the price for Y). Direct price-elasticities are typically negative. If lower than -1 it is elastic, if equal to -1 it is neutral-elastic, and, if higher than -1 it is inelastic.

It is fine to say that the derivative of a demand-function differs from the elasticity of the same function. Along a straight line, the derivative is constant while the elasticity is not. It is also fine to discuss the fact that an inelastic demand-function implies that producers have market power.

Question 2 (25%):

(i) The three main motives according to Grossman;

Health at any date t is a direct input into the utility at date t (produces a higher well-being in itself) = the consumption motive

Health at any date t is an input into production (work-productivity). A higher productivity raises income, and higher income expands our consumption-possibilities, and, more consumption will increase our utility = the investment motive.

A higher health stock also extends the expected remaining length of life, meaning that the consumption motive and the investment motive will matter for a longer expected period of time (utility in more periods) = life-length motivation.

One possibility could also be to discuss whether there are other motives beyond those mentioned by Grossman - for one example could it be that health is a “status good” - good health acts as a signal that improves your standing among peers (higher status).

(i) A higher depreciation rate

Start out with defining what depreciation in connection with health actually is capturing.

To discuss the effect of a higher degree of depreciation, one could use the example given in the textbook. Here they introduce “the cost of capital” being the sum of a constant depreciation rate and a constant interest rate. Furthermore, they introduce “MEI” which is the “marginal net benefit from investing into health care and prevention when ignoring capital costs”. By setting up a graph that measures COC and MEI on the vertical axis and the desired health stock on the horizontal axis, it follows that the desired health stock level is defined by the crossing between the two. If now, COC becomes higher, it follows that the desired health stock becomes lower – thus higher depreciation reduces the demand for health. This is because higher depreciation makes it “more costly” to invest in health since “the leakage” now is higher meaning that the returns from investing into health become less.

The graph does not say anything directly about the demand for health care services. It could for example be the case that despite of the desired health stock becoming lower, the individual could on the same time invest more in health care as a response to a higher depreciation rate. This may happen because higher investment in health care, need not increase the desired health stock, given a depreciation rate.

Note also that in the example in the textbook, the depreciation rate is assumed to be constant. This means that in this example, age is in fact assumed not to impact the rate of depreciation. How realistic is this? This is something that could be discussed. If the depreciation rate is increasing with age, the desired health stock for a given individual will change over the life cycle. When discussing the case with a constant depreciation rate, the best “story” would be to compare two individuals that are equal in all respects except for the rate of depreciation.

Question 3 (50%):

This question asks for a discussion, meaning that there is no correct or wrong answer.

However, one should start out with discussing which particular “surprising effects” you are planning to explain and discuss – say why they are surprising.

The textbook presents two surprising US observations:

- (i) More competition induces higher (endogenous) health care prices and higher health care consumption
- (ii) A reduction in the fixed health care price (a price determined by a regulator) induces a higher demand for health care services.

Depending on your choice, (i), (ii) or both, you should present theories (possible explanations) to the above-mentioned observations.

As concerning the first observation, some of the possible theories are;

- (a) The role of search costs
- (b) The target-income model,
- (c) Supply-induced demand.

As concerning the second observation, possible theories are:

- (d) The backward-bending labor supply-function.
- (e) The target-income model

Some, or all, of these theories should thereafter be carefully presented with a particular focus on the underlying assumptions and the main mechanisms that produce the possible surprising effects.

In the second part (“the discussion of relevance”), a natural start would now be to discuss the assumptions that lie behind the theory you have chosen to present. Examples here could be the role of ethics and norms, government regulation, the realism of the provider objective functions (maximizing profit?, the presence of altruistic concerns?, do providers have a target income?)

Another, maybe more challenging, approach would be to come up with some alternative explanations yourself – something not mentioned by the above-mentioned theories. One possible example would be to discuss to what extent the “surprising” effects are a result of quality-competition. Providers invest in high quality to attract customers, however, since quality is costly, the costs and prices must also become higher in order for the providers to make profit.