

EXAMINATION GUIDELINES

Fundamentals -in Health Economics

HECON 4100 (fall 2026)

Question 1 (weight 1/3)

Consider a demand curve for health care services, $P(x)$. For example, x can be physician visits.

- (i) *What does this demand curve tell us? Explain what the height of the demand curve, at a given quantity $\bar{x}$, represents? Explain why the demand curve slopes downward. Finally, show how much health care services (visits) a person demands for a given fee (price), $\bar{p}$.*

The height of the demand curve at quantity x : the marginal willingness to pay for the x -th visit (kroner per visit).

Downward slope: diminishing returns to consuming x . Each additional visit yields less than the one before, so the willingness to pay falls.

At a given fee p : the consumer buys every visit worth at least the fee; quantity demanded where $P(x) = p$ (shown in a figure).

- (ii) *Why do people demand (consume) health care in the first place? It is here possible to apply insights from the Grossmann model in your answer. In what sense is the demand for health care a derived demand, and what determines how much a person is willing to pay for a health care service (visit)?*

In the Grossman model, what the individuals demand is good health. Health care is an input in producing it. The demand for health care is therefore derived from the demand for good health.

Visits and own time produce health investment, $I = g(x, T^H; E)$, which increases the health stock, $H_{t+1} = I_t + (1 - \delta)H_t$.

Health gives healthy time, $h = f(H)$: utility (consumption motive) and earnings $w \cdot h$ (investment motive).

The willingness to pay for a visit = the value of the extra healthy time it produces. It falls with x because the marginal product of care and $f'(H)$ both fall.

- (iii) *Now suppose the patient has a health insurance that covers part of the bill (treatment costs), meaning that the patient pays only a share, c , of the fee (price) per visit, $c\bar{p}$, where $0 < c < 1$. What will now happen to the quantity of care demanded by the patient? Show this by using the demand curve. Can the change in demand (consumption) make society worse off? Explain, and discuss how this argument is used to justify copayments.*

The patient now consumes until $P(x) = c\bar{p}$. The students should show this in a figure, and explain that the patients now consume more than in the case without insurance.

There will be a deadweight loss, because the value to the patient will be less than the social cost of producing visits for all visits consumed beyond the number of visits consumed under no insurance. This is demand-side moral hazard. The insured over consumes because they do not face the social cost of care.

Copayments: a positive c keeps a price signal at the point of use and reduces the overconsumption.

A very good answer may note that the welfare-loss argument assumes willingness to pay reflects true value, and that copayments weaken financial protection.

Question 2 (weight 1/3)

Economists and health economists often refer to the concept of *market power*.

(i) *What is meant by market power?*

The degree to which a producer is able to set a price that deviates from its competitors. The presence of a downward- falling demand function (non-horizontal). A low price-elasticity of demand. Market power increase with the ability to shift demand and the steepness of the demand-function (unresponsive to price changes)

The ability to drive competitors out of the market (predatory pricing)

(ii) *Discuss factors that might impact the degree of market power.*

Limited competition (imperfect competition)

- Few competitors; the absence of rivals (entry barriers)
- Heterogenous goods (from the consumers' perspective)
- Service (face-to-face relationships)
- Insurance – less costly services, the consumers do not search for alternatives.

Asymmetric information

- Selling “expert” advices (market power due to information advantages) – health care providers have market power due to an informational advantage (the four quality dimensions) (SID-manipulation())
- The consumers have market power in insurance markets

Other: Irrational consumers (mental diseases) (not forward looking); Acute demand (emergency, accidents, sudden onsets); Non-repeated purchases; Absent regulation and quality monitoring; Search costs; Travel and time costs: Ethical constraints (professionalism).

(iii) *Present some possible consequences of the presence of market power.*

Too high prices and too low supply (monopolistic power)

Too high prices and too high supply (Supply-induced demand)

Too low quality

Deadweight loss (not maximizing the social surplus)

Low consumer surplus and high producer surplus

Question 3 (weight 1/3)

Important topics in health economics are the supply of health insurance and the functioning of risk-pooling.

- (i) *What is an actuarially fair premium and why do private insurance companies typically charge market premiums that are higher than the actuarially fair premium?*

An actuarially fair premium is the price that just covers the expected claim. It is the average loss in the pool: how likely a claim is, times how large the claim is, with nothing added on top. At that price the insurer, on average, breaks even on claims. It does not cover the cost of running the firm, and it does not include profit.

Private insurers usually charge more than that. The gap is the loading. Loading pays for administration, marketing and underwriting, claims handling, capital held against bad years, tax, and profit. The market premium is therefore fair premium plus loading. If the pool is a mix of risks the insurer cannot see, the price may also be pushed up to cover the sicker people who are more likely to buy.

- (ii) *Explain how adverse selection can cause an insurance pool to unravel when healthy (low-risk) and sick (high-risk) people pay the same premium. In such a case, what may happen to the premium over time, and what type of individuals is most likely to remain in the insurance pool over time?*

Start with one premium for everyone (community rating). Healthy and sick people pay the same price.

That price is a bargain for the high-risk person: their expected claims are above the premium, so they stay. It is expensive for the low-risk person: their expected claims are below the premium, so some of them leave and self-insure or go uninsured.

The pool that remains is sicker than the pool the premium was set for. The insurer's claims rise, so the premium is raised. The new price pushes more low-risk people out. The pool gets sicker again, and the premium rises again.

Over time the premium ratchets up. The people most likely to remain are the high-risk (sick). In the extreme the product disappears: only people who expect to claim are left, and the insurer cannot price a pool made only of them. This is adverse selection, sometimes called a death spiral. It needs voluntary purchase and a single price. A mandate, or a price that differs by risk, stops the spiral.

- (iii) *Norway provides financial protection to every citizen through a public health insurance scheme (Folketrygden). In addition, there is quite a large private health insurance market in Norway (about 900.000 are now enrolled). Discuss possible*

advantages and disadvantages of the existence of the private health insurance market in Norway.

Folketrygden already gives every resident financial protection. The private market is mostly duplicate cover: faster specialist care, shorter waits, sometimes a private hospital. Much of it is bought by employers.

Advantages. People who value time can buy speed without paying the whole bill themselves. Employers use it as a staff benefit and may get people back to work sooner. A private lane can shorten the queue for those who use it, which can slightly ease pressure on the public list. It also offers a product the public scheme does not sell (choice of time and place).

Disadvantages. It does not fill a coverage gap: the uninsured in this market are already covered by Folketrygden, so it is not a route to universal coverage. It can become a two-tier service, with faster care for people in work. Insurers and employers prefer the healthy, so the private pool is a selected group (the same logic as (ii), in mild form). Loading means part of the premium is administration rather than care. If enough middle-class patients exit the public queue, political support for funding Folketrygden can weaken. Private pay also bids for the same specialists, which can pull staff out of public lists.

A balanced close: the private market is a supplement for speed, not a substitute for the public pool. It is most defensible if it stays duplicate and does not become the way to get timely care.