Written Exam for the B.Sc. in Economics winter 2013-14

Microeconomics B

Final Exam

21/01/2014

(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.

This exam question consists of 3 pages in total

Problem 1

Consider a market that is perfectly competitive with no externalities present.

State whether the proposition below is true or false:

> "*If the supply is perfectly inelastic, then the producer will carry all the economic incidence of the tax.*"

Also, comment on the following statement:

> "*A government that wants to design a tax system for the sole purpose of collecting a tax revenue should use the following principle: minimize the tax rates and broaden the tax base.*"

Problem 2

Bente has a Bernoulli-function $u(x) = \ln(x)$ on income, and a wealth/income of 500 (thousand dkk). However, there is a probability of 2 per cent that his/her house is damaged in an autumn storm. This will imply a loss of wealth/income of 200 (thousand) dkk in repairment costs.

An insurance company offers an insurance scheme, where you choose the insurance amount K (thousand) dkk. to be paid out in the case of house damage. The insurance premium is 3 per cent of the insurance amount, and is paid regardless of any insurance event.

a) Derive Bente's first order condition for the optimal insurance amount
b) Find the optimal insurance amount.
c) Will Bente fully insure herself? Comment.

Problem 3

A beekeeper owns n beehives selling the honey on the local market. The nearby orchard has a large field of apple trees from which it harvests its fruits and sells them on the local market. In collecting the honey from the trees the bees fertilize the trees which then carry more fruit. Assume that the beekeeper and the orchard sell their products in perfectly competitive markets.

a) Comment on the following statement:

> "*From a social point of view, the amount of honey produced and sold will be too small.*"

b) Would you expect the externality to persist in the long run?

Problem 4

Consider a monopolist of patented CPU-microchip who services a market with two types of consumers: consumer A-types with an utility function $u_A(x,t) = \sqrt{x} + t$ with x being the number of units sold by the monopolist to the consumer and t is the amount of money spend on other goods. Similarly, the consumer B-types have an utility function given by $u_B(x,t) = \frac{3}{2}\sqrt{x} + t$.

The monopolist knows that there is a share $\alpha > 0$ of A-consumers, and the marginal costs are constant equal to $c > 0$.

a) Find the optimal first degree price discriminating strategy of the monopolist. Comment on the consumption of each type.
b) Assuming that the monopolist cannot observe the type of a consumer, what are the optimal packages offered.
c) Are consumer A-types worse off in b) compared to a)? Are B-types? Comment.