

ECON4240 - Spring semester 2014

Problem 1.

Discussion of Section 2.15 (Examples 1- 4).

Problem 2.

Consider the following variant of the adverse selection model with two types of agent:

The agent produces an amount q of a good and receives a transfer t from the principal. The agent is of one of two types, efficient or inefficient. The ex ante probability of the agent being efficient is p . The efficient agent's utility is $t - q^2$ while the inefficient agent's utility is $t - \theta q^2$, where $\theta > 1$. The agent's reservation utility is 0 regardless of type.

The type is known to the agent. In the asymmetric information case, the principal only knows p . The principal is risk neutral in profit, which is equal to $kq - t$ for a constant $k > 0$.

A contract is a pair (t, q) . The principal formulates a contract or a set of contracts; the agent accepts one of the proposed contracts or rejects them all.

(a) Formulate and solve the principal's problem if there is perfect information about the agent's type. Which contracts are offered and what is the principal's profit?

(b) Formulate the problem when an adverse selection problem is present.

(c) Characterize the solution to question (b). Which constraints are and which are not binding?

(d) Compare the cases of symmetric and asymmetric information.

(e) Now assume $\theta = 2$, $p = 1/2$ and $k = 1$. Solve the asymmetric information problem explicitly in this case. Find and compare the principal's expected profit in the cases of symmetric and asymmetric information.

(f) If the principal only wants to contract with the efficient type of agent, which contract should then be offered? What is the expected profit for the parameter values of question (e)?