

Übungsblatt 3

- **3-1 Comparative statics with respect to w**

A risk averse agent faces a situation where, with probability π , she will suffer a monetary loss L of her initial wealth w . She can buy insurance cover C at price pC , where p is the exogenously given premium rate.

a) What effect has a marginal increase in her initial wealth w on her optimal demand for cover C^* ? Under what conditions do you get unambiguous results?

b) Use your results from a) and analyze the problem for the following utility functions:

(i) $u(w) = \ln w$

(ii) $u(w) = w - aw^2$

(iii) $u(w) = -e^{-aw}$

Explain why the results in (i), (ii), and (iii) differ.

- **3-2 Comparative statics with respect to π and L**

a) An agent has a logarithmic utility function $u(w) = \ln w$. Her situation is the same as in 3-1. How does the optimal cover C^* change if suffering a loss becomes more likely, i.e. if the loss probability π increases?

b) The same agent, bad enough, now has another problem. Instead of a higher probability for the bad things to happen, these bad things now become worse. That is, the possible loss L increases ceteris paribus. How does her demand C^* change?

- **3-3 Comparison of coinsurance and deductible**

In the real world, deductibles are the much more commonly observed form of partial cover than a proportional coinsurance contract. Show in a diagram that risk averse utility maximizers strictly prefer contracts with a deductible (as long as both contracts create the same expected wealth). Why is that? [Draw an appropriate graph and recall what you know about SOSD (Second Order Stochastic Dominance)]

- **3-4 Insurance demand by firms; reinsurance**

Standard economic theory suggests that firms are risk neutral agents. Nevertheless we find numerous examples where firms buy insurance cover, and they buy huge amounts.

a) What are possible explanations for the firms' irrational acts? Is it possible that buying insurance is optimal even for risk neutral agents?

b) Especially surprising is the existence of reinsurance companies. Do the arguments from a) hold for them, too? Are there other plausible explanations for their existence?