The Impact of Risk Aversion on the Rigidity of Insurance Premiums

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Abstract

We consider an insurance company (IC) which is insuring a client's enterprise. If the client wanted to be fully insured, s/he would have to pay the premium P_0. However, the client has chosen the quota $q_0 \leq 1$ to be insured and thus pays $q_0 P_0$. This situation gives rise to the *status quo* (q_0, P_0). At a possible renewel of the insurance contract the IC considers to adjust the premium to a new value P, maybe because financial and/or macroeconomic circumstances have changed. However, the IC is uncertain about the client's reaction. Moreover, *the farther the IC distances itself from the status quo, the larger is its uncertainty.* Will the client change the quota q_0 and if so, how? And how will the IC behave in this scenario? If it increases the premium, on microeconomic grounds it can be expected that the client decreases or at least not increases the quota q of her/his business to be insured. Empirical research with respect to insurance demand and premium policy in fact points to a substantial price elasticity as well as a considerable premium rigidity (see e.g. [2], [3], [5]).

We show that, if the IC is risk averse, it may choose to keep the premium fixed although an else identical risk neutral IC would change it, provided the variance of the IC's subjective probability distribution over the quota demanded by the client as a function of the premium displays a kink at the

status quo. This is equivalent to risk aversion of order one as introduced by Segal and Spivak [4] and at difference with Arrow's Local Risk-Neutrality Theorem [1]. The fundamental insight then is that this kink is inherited by the IC's expected utility function, in spite of the fact that the expected value of the quota demanded remains a smooth function of the premium, also and in particular at the status quo.

When no such fixed premiums exist, the size of premium adjustment still decreases substantially as risk aversion increases. Moreover, in case of small premium adjustment costs, increasing risk aversion significantly diminishes the size of costs sufficient to keep the premium unchanged.

Keywords
Premium rigidity, risk aversion, premium adjustment costs.

References

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