PROPERTIES OF THE BONUS–MALUS SYSTEMS WITH DIFFERENT CLAIM TYPES AND VARYING DEDUCTIBLES

OLENA RAGULINA
Taras Shevchenko National University of Kyiv, Ukraine
e-mail: ragulina.olina@gmail.com

Rating systems penalizing policyholders responsible for one or more accidents by premium surcharges (or maluses), and rewarding claim-free policyholders by giving them discounts (or bonuses) are often called bonus–malus systems and aim to assess individual risks better. Traditional bonus–malus systems suffer from two considerable drawbacks. Firstly, the claim amounts are not taken into account and a posteriori corrections depend only on the number of claims. In particular, this breeds bonus hunger. Secondly, at any time the policyholders may leave the insurance company without any further financial penalties. Thus, traditional bonus–malus systems create the possibility of malus evasion.

To eliminate those drawbacks, a few other approaches have been proposed. First of all, bonus–malus systems involving different claim types were designed in [1]. Particularly, claims amounts can be taken into account in this way. Moreover, bonus–malus systems with varying deductibles were introduced in [2], where the a posteriori premium correction induced by the bonus–malus system is replaced by a deductible (in whole or in part).

We try to eliminate both those drawbacks and deal with bonus–malus systems with different claim types and varying deductibles [3]. The premium relativities are softened for the policyholders who are in the malus zone and these policyholders are subject to per claim deductibles depending on their levels in the bonus–malus scale and the types of the reported claims. Such bonus–malus systems present a number of advantages and seem to be very attractive for policyholders. We introduce such bonus–malus systems and study their basic properties. In particular, we investigate when it is possible to introduce varying deductibles, what restrictions we have and how we can do this. Next, we deal with the special case where varying deductibles are applied to the claims reported by policyholders occupying the highest level in the bonus–malus scale and consider two allocation principles for the deductibles. Finally, numerical illustrations are presented, which show that use of both penalty types seems to be indeed attractive and fair for policyholders.

References