ISSUES IN BONUS - MALUS SYSTEMS DESIGN

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<Abstract>

In most developed countries, bonus-malus systems are a cornerstone of third-party liability automobile insurance rating. In this paper the history and evolution of such systems are summarized. The most common issues that arise when a country, like Korea, is in the process of implementing a new system or revising its current system, are then detailed. And recommendations for regulator and insurance companies are suggested.

Key Words : Bonus-Malus Systems, Automobile Insurance Third-party Liability, Automobile Insurance Pricing.

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Ⅰ. History of Bonus-Malus Systems

The story of man and his motor car is one of the great love affairs of the last 100+ years. When Karl Benz built the first vehicle to use an internal combustion engine in 1885, there were fewer than 1,000 cars on the roads world-wide. In 2010, it is estimated that the total number of cars passed the one-billion mark. An unfortunate consequence has been the growth of traffic accidents and casualties. Nearly 1.3 million people die on the road every year, with road crashes costing over $518 billion annually, about the Gross Domestic Product of Malaysia. According to the most up-to-date records, the number of passenger cars in Korea reached 18,437,000 in 2011, with 5,229 people killed and 341,391 injured (Korea Road Traffic Authority, 2012). Automobile third-party liability insurance has consequently been made compulsory in most countries, and all actuaries around the world face the problem of distributing the burden of claim costs fairly among policyholders. If all risks in a line of business are not producing the same distribution of losses, it is only fair to identify rating variables that are significantly correlated with the risk, and to partition all policies in rating cells.

In the ever-larger number of countries where insurers are free to design their own pricing, insurers need to use a rating structure that matches the premiums to the risks as closely as possible, or at least as closely as the rating scheme used by competitors. This entails using virtually every available significant classification variable, because failing to do so means sacrificing the chance to select against competitors and incurring the risk of suffering adverse selection from them. This fear of adverse selection induces insurers to use a large number of a priori pricing variables, variables with values that can be determined before the policyholder starts to drive.