Nash Equilibrium Pricing of General Insurance in a Competitive Non-Cooperative Market

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Abstract

In the insurance industry, the number of products from different insurance companies has been significantly increased, and the strong market competition has also boosted the demand of a competitive premium. However, there is still little literature available in the actuarial science on modelling how the competition actually affects the determination of the company's premiums. Considering the competition between each pair of insurers, an N-player game is constructed in insurance market to investigate the optimal pricing strategy by calculating the Nash Equilibrium. Each insurer is assumed to maximize its utility of wealth over the unit time interval. With the purpose of solving the game of N players, the technique of aggregate game is applied into our model by aggregating all insurers' premium strategies. The existence of Nash Equilibrium is proved through the approach of finding out the potential function of all insurers' payoff functions.

Keywords

Competitive Insurance Market, Aggregate Games, Potential Games

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