

Pricing To maximize SMR via optimal control theory

sara Dadras¹ and mahmoud mahmoudi¹

¹University of Qom

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Abstract

In this paper, the porpuse is to determine an optimal premium in order to increase the insurer's SMR using a control model. For this purpose, First, a stochastic dynamic model is introduced to describe the process of receiving premium and paying claims. Then, the premium variable is introduced as the problem control variable. Next, In order to increase SMR and control the premium, an appropriate objective function is defined for control variables and state variables. In the end, after deterministing and discretizing the model, the optimal control problem by using particle swarm is solved.

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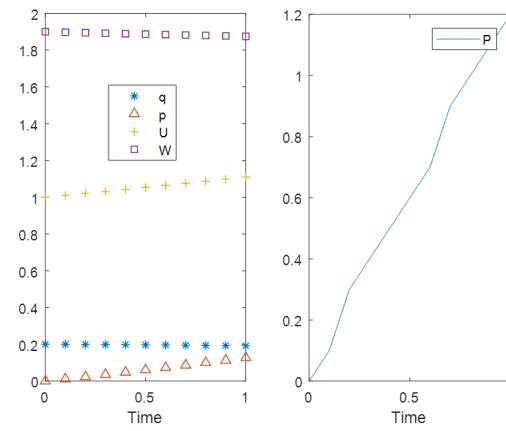


Figure.1