

Predicting the Time of Ultimate Deficit of an Insurance Risk Process

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Abstract

In collective risk theory, the main focus has always been on the probability of ruin and other related quantities. In this talk, we take a closer look at the time of ultimate deficit of an insurance risk process. Under the net-profit condition, we know that an insurance risk process goes to infinity, which assures that the ruin probability problem is not trivial. This means that there is a final time at which the process attains its overall infimum or ultimate deficit. This random time is not a stopping time and, as such, one can never know if a current deficit is or not the ultimate deficit. Here, we ask the question whether one can predict the time of ultimate deficit by means of a stopping time that is close enough to the time of ultimate deficit. These problems have been studied for brownian motion and stable Lévy processes [1]. In this talk, we discuss how these tools can be transposed into the realm of collective risk theory and used to predict the time of ultimate deficit. We focus on discussing the potential for applications of studying such question.

References

- [1] BERNYK, V.; DALANG, R.C. AND PESKIR, G. (2008) THE LAW OF THE SUPREMUM OF A STABLE LEVY PROCESS WITH NO NEGATIVE JUMPS. *The Annals of Probability* (36) 5. 1777-1789.