SOCIETY OF ACTUARIES

Article from:

ARCH 2013.1 Proceedings

August 1- 4, 2012

David Landriault, Ya Fang Wang, Gordon E. Willmot

The application of the number of IBNR claims for Erlang (n) interarrival times

David Landriault[1], Ya Fang Wang[2] and Gordon E. Willmot[3]

[1]University of Waterloo, Waterloo, Canada ; dlandriault@uwaterloo.ca
[2]University of Manitoba, Winnipeg, Canada; wangyafang2004@yahoo.ca
[3]University of Waterloo, Waterloo, Canada ; gewillmo@uwaterloo.ca

The IBNR claims are a key issue for insurance firms or risk businesses to determine the reserve. For Poisson or mixed Poisson processes, the distribution of the number of IBNR claims is well known and governed by nonhomogeneous Poisson processes. Here we generalize Poisson process to a renewal process, especially Erlang (n) renewal processes. Homogeneous differential equations are derived for the probability generating function of the number of IBNR claims. For Applications, we compare differences between classical risk model and Erlang (n) renewal risk model. This work gives insurers more flexible choice to fit their risk models. This research work also leads to some results for the number of busy servers with infinity servers.