The distribution of discounted compound renewal sums

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Abstract

 The moment generating function of discounted compound sums,

$$Z(t) = \sum_{k=1}^{N(t)} e^{-\delta T_k} X_k; \qquad t \geq 0$$

With $Z(t) = 0$ if $N(t) = 0$, is now known for several risk models.

By numerical inversion, we obtain here the distribution of $Z(t)$ when the $T_k's$ are the arrival times of the renewal process and $\delta \geq 0$ is known.

The method is illustrated with several combinations of frequency / severity distributions.