COUNTING DISTRIBUTIONS IN RISK THEORY[*]

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Abstract

In this paper we introduce some significant counting distributions in risk theory. The first one is the I-Delaporte distribution. It is a generalization of the Non-central negative binomial distribution. The second distribution is the Non-central Pólya-Aeppli distribution. It is a sum of two independent random variables, one that is a Poisson and another one, a Pólya-Aeppli distributed. The Pólya-Aeppli-Lindley, the compound Pólya and compound binomial distributions are also considered. They are mixed Pólya-Aeppli distribution with Lindley mixing distribution, compound negative binomial and compound binomial distribution with geometric compounding distribution. The main application of these distributions is that they can be used as corresponding counting processes' distributions in risk models.

MSC: 60K10; 62P05.

keywords: counting distributions, mixed distributions, compound distributions

1   Introduction

The Inflated-parameter negative binomial distribution (INBD) was introduced in [18] as a compound negative binomial distribution (NBD) with geometric compounding distribution. We analyse a convolution of INBD