A Review of Composite Models with Applications in Actuarial Science and Economics

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Abstract

The composite models have received a lot of attention in the recent actuarial literature. In this presentation, we carry out an exhaustive study of different composite models. In addition, we derive some analytical expressions of different actuarial and statistical quantities for a general class of composite models. These quantities include the probability density functions, cumulative distribution functions, quantile functions, raw moments, value at risk, tail moments, moments of loss variables and the quantile density function, which is very useful for the computation of expectations of order statistics. Applications of these models to two sets of unimodal and positively-skewed insurance claim size data are provided and computation of risk measures is completed. Finally, the usefulness of these models to explain income and wealth and city size distributions is illustrated.