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DISTRIBUTION OF CORRELATED LOGNORMAL RANDOM SUM

Aceng Komarudin Mutaqin

Department of Statistics
Faculty of Mathematics and Natural Sciences
Universitas Islam Bandung
Ranggamalela 1 Bandung 40116
Indonesia
e-mail: aceng.k.mutaqin@gmail.com

Abstract

Correlated lognormal random sum (CLRS) is random sum, $Z_N = X_1 + X_2 + \cdots + X_N$, $N = 0, 1, 2, \ldots$, when $X_1, X_2, \ldots, X_N$ are correlated and the distribution of $X_1, X_2, \ldots, X_N$ given $N = l$ is multivariate lognormal. This paper discusses the approximation distribution for CLRS. The approximation percentile, mean and variance of CLRS are also discussed. Monte Carlo simulation is conducted to investigate the approximations. The simulation results show that the approximation distribution, percentile, mean and variance of CLRS are valid and good approximations.

1. Introduction

The sum of independent random variables also called the *random sum*, $Z_N = X_1 + X_2 + \cdots + X_N$, $N = 0, 1, 2, \ldots$, where $Z_N = 0$, has been

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