



Power comparison of independence test for Farlie-Gumbel-Morgenstern family*

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Abstract

Developing test for independence of random variables X and Y against the alternative has an important role in statistical inference. Kochar and Gupta (1987) proposed a class of tests in view of Block and Basu (1974) model and compared the powers for sample sizes $n = 8, 12$. In this paper, we evaluate Kochar and Gupta (1987) class of tests for testing independence against quadrant dependence in absolutely continuous bivariate Farlie-Gumbel-Morgenstern distribution, via a simulation study for sample sizes $n = 6, 8, 10, 12, 16$ and 20 . Furthermore, we compare the power of the tests with that proposed by Güven and Kotz (2008) based on the asymptotic distribution of the test statistics.

KEYWORDS: Negative and Positive quadrant dependence, Farlie-Gumbel-Morgenstern distribution, U-Statistics

MSC 2000: Primary 62G10, 62H20; Secondary 62E15, 62E20.

1. Introduction

Dependence relations between random variables is one of the most widely studied topic in probability theory and statistics. Among them, our concentration is on positive and negative quadrant dependence (PQD and NQD), that are the most useful concept of dependence. The notations of these concepts are introduced by Lehmann (1966). Both PQD and NQD are qualitative forms of dependence and indicated whether or not a pair of random variables exhibits

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