Testing the Equality of the Means of Three or More Quadratic-Normal Distributions

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Research Report No. 3/2007

Abstract

When these are a $(a \geq 3)$ independent variables which have respectively the normal distributions $N(\mu_1, \sigma_1^2), N(\mu_2, \sigma_2^2), \cdots, N(\mu_a, \sigma_a^2)$, the ideas contained in Pan and Pooi (2006) have been used to devise a test for the hypothesis $H_0 : \mu_1 = \mu_2 = \cdots = \mu_a$. Now suppose we have a $(a \geq 3)$ independent random variables which have respectively the quadratic-normal distributions $QN(\mu_1, \underset{\sim}{\lambda}^{(1)}), QN(\mu_2, \underset{\sim}{\lambda}^{(2)}), \cdots, QN(\mu_a, \underset{\sim}{\lambda}^{(a)})$. The ideas in Pan and Pooi (2006) can again be used to devise a test for the hypothesis that the means $\mu_1, \mu_2, ..., \mu_a$ of the a random variables are equal. The numerical results in the case when $a = 3$ show that the probabilities of the acceptance regions of the test are fairly close to the target value.

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