1079-60-220 **R.I.P Wickramasinghe*** (indika.wickramasinghe@ttu.edu), TX , and **A A Trindade**. .
We present a comparison of distributions of Moving Average model of order 1, MA(1). Here the consideration is given to three estimators of MA(1) parameter and saddlepoint approximations are used to estimate distributions. Three estimators we consider are the method of moments (MOME), the conditional least squares (CLSE) and the maximum likelihood (MLE). The estimator of the parameter can be expressed as the root of an estimating equation, which is a quadratic form in normal random variables. This is known as quadratic estimating equation (QEE). Saddlepoint approximations of the probability density function (PDF) of MA(1) estimator for MOME, CLSE and MLE is obtained and compared with their simulated counterparts. Luganni and Rice (1980) formula is used to obtain the cumulative distribution function (CDF) of MA(1) estimator. Distribution comparison of above estimators are conducted with their asymptotic distributions. Findings of Cryer and Ledolter (1981) of MLE probabilities when the parameter takes ± 1 is calculated and compared. Finally, expression of estimators in the form of quadratic estimation equation is considered for a more general case of Power Exponential (PE) random variables.

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