BEST CHOICES OF PLOTTING POSITIONS WHEN TESTING FOR GOODNESS OF FIT OF NORMALITY

Husam Awni Bayoud

College of Sciences and Humanities, Fahad Bin Sultan University, Tabuk, Saudi Arabia
Email: hbayoud@fbsu.edu.sa; husam.awni@yahoo.com

Hanan Haj Ahmad

Department of Basic Science, Preparatory Year Deanship, King Faisal University
Hofuf, Al-Ahsa, 31982, Saudi Arabia
Email: hhajahmed@kfu.edu.sa

SUMMARY

This paper studies new plotting positions and compares them with those proposed in the literature in order to choose the plot(s) that is(are) the best able to detect departure from Normality when testing for the goodness of fit. The Pearson product-moment correlation coefficient (PPCC) is used as a goodness-of-fit test statistic corresponding to each plotting positions. Critical values for test statistics associated with the underlying plotting positions are simulated. Consequently, then the powers of the tests are computed and compared via simulation studies in order to select the most powerful plotting position when testing for Normality. Also, the best plotting positions are applied for the prediction of return periods of extreme values. Two real data sets are analyzed; extreme rainfalls in Belgium and the extreme number of confirmed cases of COVID-19 in China.

Keywords and phrases: Correlation; Normality tests; Plotting Positions; Plotting Probability; Power; Return Period; Simulation.

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