# ESTIMATION OF STRESS-STRENGTH RELIABILITY FOR TRANSMUTED POWER FUNCTION DISTRIBUTION

**Caner Tanış[[1]](#footnote-1)\***

**Science Faculty, Department of Statistics, Çankırı Karatekin University, Çankırı, Türkiye**

**0000-0003-0090-1661**

|  |
| --- |
| **ABSTRACT**  This study provides an estimation of the stress-strength reliability for the transmuted power function distribution. We analyzed the transmuted power function distribution and its properties and obtained stress-strength reliability. The maximum likelihood method was used to estimate the transmuted power function distribution parameters. Furthermore, by using the invariance property of the maximum likelihood estimator, we obtained the maximum likelihood estimator of the stress-strength reliability. We designed a comprehensive Monte Carlo simulation study to check whether the maximum likelihood estimator satisfies the estimation procedures in terms of bias and mean square error. The simulation results show that the maximum likelihood estimator of the stress-strength reliability of the transmuted power function distribution satisfies the estimation procedures. |

# Keywords: Transmuted power function distribution, Maximum likelihood estimation, Stress-strength reliability, Monte Carlo simulation

1. \* Corresponding author. *e-mail address: canertanis@karatekin.edu.tr* [↑](#footnote-ref-1)