

# **Applications of Conformable Fractional Pareto Probability Distribution**

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## **Abstract**

The Pareto distribution, named after the Italian civil engineer, economist, and sociologist Vilfredo Pareto. (1848-1923) who discovered it while studying distributions for modeling income in Switzerland, by creating a mathematical formula in the early 20th century that described the inequalities in wealth distribution. It is a power law probability distribution that is used in description of, social, scientific, geophysical, actuarial, and many other types of observable phenomena. This thesis looks at fractional isotopes conformable to some basic concepts linked to the probability distribution of random variables, which is density, cumulative distribution, survival, and hazard function. Furthermore, it introduces conformable fractional isotopes with the expected values,  $r^{th}$  moments, mean, variance, skewness, and kurtosis. As well, it introduces conformable fractional isotopes with measures of entropy such as Shannon, Renyi, and Tsallis and characteristic function. The results that appeared in the message have found a special case of the Pareto distribution and it consists of three parameters

**Keywords:** Entropy, conformable distribution, Pareto, and probability measures.