CHARACTERIZATIONS BASED ON CONDITIONAL EXPECTATIONS OF THE DOUBLED TRUNCATED DISTRIBUTION

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Abstract. The expression of the continuous distribution function $F(x)$ is obtained whenever $m(x,y) = E(X \mid x \leq X \leq y)$ is known. Moreover, we obtain the necessary and sufficient conditions so that any function $m : \mathrm{R}^2 \to \mathrm{R}$ is the conditional expectation $E(X \mid x \leq X \leq y)$ of a random variable X with continuous distribution function. Furthermore, we relate $m(x,y)$ to order statistics.

Key words and phrases: Characterizations, doubled truncated distribution, conditional expectations, mean residual life, order statistics.