

SOME CHARACTERIZATION RESULTS BASED ON THE CONDITIONAL EXPECTATION OF A FUNCTION OF NON-ADJACENT ORDER STATISTIC (RECORD VALUE)

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Abstract. In this paper, we attempt to characterize a distribution by means of $E[\psi(X_{k+s:n}) \mid X_{k:n} = z] = g(z)$, under some mild conditions on $\psi(\cdot)$ and $g(\cdot)$. An explicit result is provided in the case of $s = 1$ and a uniqueness result is proved in the case of $s = 2$. For the general case, an expression is provided for the conditional expectation. Similar results are proved for the record values, both in the continuous as well as in the discrete case (weak records).

Key words and phrases: Adjacent order statistic, failure rate, uniqueness theorem, continuous and discrete record values.