

DRHR and IFR properties of a general counting process stopped at random times

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Abstract

Ross et al. (4) provide conditions for a general counting process stopped at random time to be increasing failure rate (IFR). This article surveys a different approach for the foregoing result and establishes new conditions so that it has decreasing reversed hazard rate (DRHR). The proofs of the results are based on bivariate characterizations of both the hazard rate and the reversed hazard rate stochastic orders (Müller and Stoyan (3)). The results are applied to generalized renewal processes and trend-renewal processes. Kijima and Sumita (2) introduced the former to model the failures of repairable systems when the repair restores the system to any possible state previous to failure, whereas the latter (Evelbakk et al. (1)) constitute an extension of the non-homogeneous Poisson process.

References

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