Abstract: The purpose of this paper is to introduce a proportional reversed hazard model in contrast to the celebrated proportional hazard model, and study some of its structural properties. Some criteria of ageing are presented and the inheritance of the ageing notions (of the base line distribution) by the proposed model are studied. The exponentiated Weibull distribution is studied and the shapes of its density and the failure rate are examined. Two important data sets are analyzed: one uncensored and the other having some censored observations. In both cases, the confidence bands for the failure rate and the survival function are investigated. In one case the failure rate is bath tub shaped and in the other it is upside bath tub shaped and thus the failure rates are non-monotonic even though the baseline failure rate is monotonic. In addition, the estimates of the turning points of the failure rates are provided.

Key Words: