Life distributions in survival analysis and reliability: Structure of semiparametric families

Ingram Olkin

Stanford University

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Semiparametric families are families that have both a real parameter and a parameter that is itself a distribution. A number of semiparametric parametric families suitable for lifetime data in survival or reliability are introduced: scale, power, frailty (proportional hazards), age, moment, and others. Interesting results on stochastic orderings are obtained for these families. The coincidence of two families provides a characterization of the underlying distribution. Some of the characterization results provide a rationale for the use of certain families. In this talk we provide an overview of these semiparametric families, and present several characterizations.

This work is a joint effort with Albert W. Marshall.

References

[1] Marshall, A.W., Olkin, I. (2007). *Life Distributions: Structure of Nonparametric, Semiparametric, and Parametric Families*. Springer, New York.