

Analysis of Warranty Data With and Without Supplemental Information

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Abstract:

Manufacturing companies analyze lifetime data sourced from the field to grasp the reality of operational reliability of products, because such data reflects the effects of environmental conditions and usage on a product while it is in service. A preferred source of field data is warranty database which is automatically generated and updated at no additional cost from user repair requests when a failure occurs during the warranty period. This paper discusses maximum likelihood estimation on usage time scale incorporating warranty claims data and sales data. Performance of the proposed method is evaluated, and an application is illustrated which compares the proposed method with that where the usage distribution is estimated from condition monitoring data obtained from the web. The practical consequence of this research is that additional information is not necessary to obtain good estimates of the lifetime parameters.

Key words:

Reliability, lifetime, usage distribution, condition monitoring data.