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Modeling total expenditure on warranty claims. (English) Zbl 1238.90051
Stoch. Models 27, No. 3, 431-473 (2011).

Summary: We approximate the distribution of total expenditure of a retail company over warranty claims incurred in a fixed period $[0, T]$, say the following quarter. We consider two kinds of warranty policies, namely, the non-renewing free replacement warranty policy and the non-renewing pro-rata warranty policy. Our approximation holds under modest assumptions on the distribution of the sales process of the warranted item and the nature of arrivals of warranty claims. We propose a method of using historical data to statistically estimate the parameters of the approximate distribution. Our methodology is applied to the warranty claims data from a large car manufacturer for a single car model and model year.

MSC:

90B25 Reliability, availability, maintenance, inspection in operations research
90B50 Management decision making, including multiple objectives
60F05 Central limit and other weak theorems

Cited in 1 Document

Keywords:

characteristic function; random measure; stable distribution; weak convergence

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