ON USE OF SIMULATION TECHNIQUE TO AUGMENT THE RELIABILITY OF A SYSTEM

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ABSTRACT

The use of simulation in industry, of late, has become an important technique. It is used in the analysis of a number of complex systems, where analytical methods are either difficult to apply or not possible to apply. The problem discussed here is to increase the reliability of a system, which, depends on a set of components connected in series. The increment can be done, by connecting to each of the components, similar components in parallel under some price and weight restrictions. The number of each of these components, are selected using simulation and the combination giving the maximum reliability can be decided. An algorithm to reach the maximum reliability using simulation, under the price and weight restriction is been discussed. In the last section with some numerical values we find the maximum reliability for a five component series system and reach an important result.

ON A QUASI- NEGATIVE BINOMIAL DISTRIBUTION

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ABSTRACT

A quasi-negative binomial distribution, in which the probability of an event is linearly dependent on the number of successes, has been studied. It has been found as a two-parameter gamma mixture of the 'generalized Poisson distribution' of Consul and Jain (1973).Some other models leading to this distribution have been given. Its moments have been obtained in terms of factorial power series. The estimation of its parameters has been discussed and the distribution has been fitted to some observed sets of data to test its goodness of fit.

OPTIMAL ORDERING POLICIES WHEN ANTICIPATING PARAMETER CHANGES IN EOQ SYSTEM UNDER RANDOM INPUT

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ABSTRACT

The classical EOQ model requires all the parameters to be constant. Subsequent development have considered models in which just one or more of the cost or demand parameters change at a point of time and, the number of units received does not necessarily match with the number of units ordered but has a known mean and variance. In practice, price rises are often announced, in advance, and such changes may affect the demand rate. We determine the optimal ordering policy for such systems and present a simple algorithm for computing it. This is supported by a numerical example, which shows some of the interdependencies of the various parameters.

AN ALTERNATIVE ESTIMATOR OF THE PARAMETER OF GEOMETRIC LIFE- TIME MODEL UNDER TYPE-I PROGRESSIVE CENSORED SAMPLING

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ABSTRACT

The main purpose of the present paper is to propose an estimator for the parameter of the geometric lifetime model whose bias and *MSE* are less than that of *MLE* under Type-I progressive censored sampling and it has been shown through numerical comparison.

OPTIMAL ESTIMATION OF MEANS OF SEVERAL VARIABLES USING MULTIVARIATE AUXILIARY INFORMATION UNDER STRATIFIED SAMPLING

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ABSTRACT

In this paper, we define the estimator of the finite population mean vector of several principal variables under stratified sampling design, in the situations where mean vector of the auxiliary variables is known. An optimum estimator by using the criterion of preference given by Tripathi and Chaubey (2000) has been obtained.

A GENERALIZED ESTIMATOR OF POPULATION MEAN USING AUXILIARY INFORMATION IN GENERAL SAMPLING DESIGN

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ABSTRACT

A modified estimator of population mean using auxiliary information under general sampling design is proposed and its properties are studied under *PPS* sampling. It is seen that the proposed estimator is considerably more efficient than exiting estimators. Numerical illustration has also been included.

SOME NON-ADDITIVE GENERALIZED MEASURES OF 'USEFUL' INFORAMTION AND J-DIVERGENCE

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ABSTRACT

In the present paper an axiomatic characterization of non-additive measures of 'useful' information associated with a pair of probability distributions of a sample space having utility distribution corresponding to the same number of elements in both probability distributions has been studied. The quantity so obtained under additional suitable postulates leads to the generalized measures of 'useful' relative information, information improvement and J-divergence. Particular cases and important properties of the measures so obtained have also been studied.

A NOTE ON THE LOSS OF INFORMATION DUE TO CENSORING – THE PARETO CASE

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ABSTRACT

This article is concerned with the loss of information that arises due to Type I censoring while discriminating between two Pareto populations. The discrepancy criterion used is due to Kullback and Leibler. It is shown that the loss of information depends on the truncation time as specified by the censoring procedure. An expression for the residual duration of the experiment is also obtained. Finally, a numerical illustration with simulated data is given.