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Este Volume da REVSTAT, Volume 14, N.º 4 - outubro 2016, apresenta os seguintes artigos científicos:

DENSITY OF A RANDOM INTERVAL CATCH DIGRAPH FAMILY AND ITS USE FOR TESTING UNIFORMITY
Autor*: Elvan Ceyhan*.

ON THE IDENTIFIABILITY CONDITIONS IN SOME NONLINEAR TIME SERIES MODELS
Autores: *Jungsik Noh* e *Sangyeol Lee*.

ESTIMATING THE SHAPE PARAMETER OF TOPP–LEONE DISTRIBUTION BASED ON PROGRESSIVE TYPE II CENSORED SAMPLES
Autor: *Husam Awni Bayoud.*

OBJECTIVE BAYESIAN ESTIMATORS FOR THE RIGHT CENSORED RAYLEIGH DISTRIBUTION: EVALUATING THE AL-BAYYATI LOSS FUNCTION
Autores: *J.T. Ferreira, A. Bekker* e *M. Arashi*

ON HITTING TIMES FOR MARKOV TIME SERIES OF COUNTS WITH APPLICATIONS TO QUALITY CONTROL
Autores*: Manuel Cabral Morais* e *António Pacheco*

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O presente volume **REVSTAT: Volume 14, No.4 - outubro 2016** contém cinco artigos, cujos resumos, originais em inglês, se apresentam de seguida:

DENSITY OF A RANDOM INTERVAL CATCH DIGRAPH FAMILY AND ITS USE FOR TESTING UNIFORMITY

Author*: Elvan Ceyhan*

We consider (arc) density of a parameterized interval catch digraph (ICD) family with random vertices residing on the real line. The ICDs are random digraphs where randomness lies in the vertices and are defined with two parameters, a centrality parameter and an expansion parameter, hence they will be referred as central similarity ICDs (CS-ICDs). We show that arc density of CS-ICDs is a U-statistic for vertices being from a wide family of distributions with support on the real line, and provide the asymptotic (normal) distribution for the (interiors of) entire ranges of centrality and expansion parameters for one dimensional uniform data. We also determine the optimal parameter values at which the rate of convergence (to normality) is fastest. We use arc density of CS-ICDs for testing uniformity of one dimensional data, and compare its performance with arc density of another ICD family and two other tests in literature (namely, Kolmogorov–Smirnov test and Neyman's smooth test of uniformity) in terms of empirical size and power. We show that tests based on ICDs have better power performance for certain alternatives (that are symmetric around the middle of the support of the data).

ON THE IDENTIFIABILITY CONDITIONS IN SOME NONLINEAR TIME SERIES MODELS

Authors: *Jungsik Noh* and *Sangyeol Lee*

In this study, we consider the identifiability problem for nonlinear time series models. Special attention is paid to smooth transition GARCH, nonlinear Poisson autoregressive, and multiple regime smooth transition autoregressive models. Some sufficient conditions are obtained to establish the identifiability of these models.

ESTIMATING THE SHAPE PARAMETER OF TOPP–LEONE DISTRIBUTION BASED ON PROGRESSIVE TYPE II CENSORED SAMPLES

Author: *Husam Awni Bayoud.*

In this paper, classical and Bayesian point estimations of the Topp–Leone distribution shape parameter are studied when the sample is progressive Type II censored. The maximum likelihood estimator (MLE) of the unknown parameter is proposed. Since the MLE does not have an explicit form, an approximate MLE has been derived. The Bayes estimate and the associated credible interval are also studied. Lindley's method is proposed to approximate the Bayes estimate. The importance sampling technique is also proposed to approximate the Bayes estimate and to construct the associated credible interval. Monte Carlo simulations are performed to compare the performances of the proposed methods, and two data sets have been analyzed for illustrative purposes.

OBJECTIVE BAYESIAN ESTIMATORS FOR THE RIGHT CENSORED RAYLEIGH DISTRIBUTION: EVALUATING THE AL-BAYYATI LOSS FUNCTION

Authors: *J.T. Ferreira, A. Bekker* and *M. Arashi*

The Rayleigh distribution, serving as a special case of the Weibull distribution, is known to have wide applications in survival analysis, reliability theory and communication engineering. In this paper, Bayesian estimators (including shrinkage estimators) of the unknown parameter of the censored Rayleigh distribution are derived using the Al-Bayyati loss function, whilst simultaneously considering different objective prior distributions. Comparisons are made between the proposed estimators by calculating the risk functions using simulation studies and an illustrative example.

ON HITTING TIMES FOR MARKOV TIME SERIES OF COUNTS WITH APPLICATIONS TO QUALITY CONTROL

Authors*: Manuel Cabral Morais* and *António Pacheco*

Examples of time series of counts arise in several areas, for instance in epidemiology, industry, insurance and network analysis. Several time series models for these counts have been proposed and some are based on the binomial thinning operation, namely the integer-valued autoregressive (INAR) model, which mimics the structure and the autocorrelation function of the autoregressive (AR) model.

The detection of shifts in the mean of an INAR process is a recent research subject and it can be done by using quality control charts. Underlying the performance analysis of these charts, there is an indisputable popular measure: the run length (RL), the number of samples until a signal is triggered by the chart. Since a signal is given as soon as the control statistic falls outside the control limits, the RL is nothing but a hitting time.

In this paper, we use stochastic ordering to assess:

– the ageing properties of the RL of charts for the process mean of Poisson INAR(1) output;

– the impact of shifts in model parameters on this RL.

We also explore the implications of all these properties, thus casting interesting light on this hitting time for a Markov time series of counts.

Em 2003 o Instituto Nacional de Estatística iniciou o lançamento da revista científica **REVSTAT-STATISTICAL JOURNAL**, publicada em Inglês com periodicidade semestral, e com um prestigiado corpo editorial de índole internacional, que veio substituir a *Revista de Estatística* editada em Português de 1996 a 2002, também pelo Instituto. A partir de 2016 a **REVSTAT – Statistical Journal** passa a ter periodicidade trimestral.

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