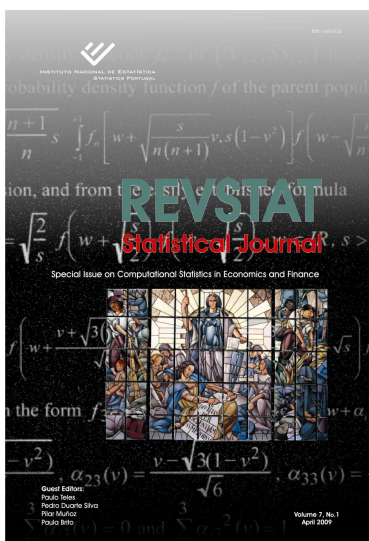11 November, 2010

Multithemes

Volume 8, Number 2, November 2010

REVSTAT-STATISTICAL JOURNAL

REVSTAT-STATISTICAL JOURNAL, Volume 8, N.º 2 – November 2010

In 2003 the National Statistical Institute launched the scientific statistical journal **REVSTAT-STATISTICAL JOURNAL**, published in English two times a year, with a prestigious international Editorial Board, which came to substitute the *Revista de Estatística* [Statistical Review], published in Portuguese between 1996 and 2002.

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This Volume of **REVSTAT: Volume 8, No. 2 - November 2010**, includes four articles. Their abstracts are presented below:

AUTOREGRESSIVE SEQUENCES VIA LÉVY PROCESSES
Author: *Nadjib Bouzar*

We use Lévy processes to develop a family of first-order autoregressive sequences of random variables with values in $\mathbf{R}_+$, called C-$\mathrm{AR}(1)$ processes. We obtain various distributional and regression properties for these processes and we establish a limit theorem that leads to the property of stationarity. A connection between stationarity of C-$\mathrm{AR}(1)$ processes and the notion of C-self-decomposability of van Harn and Steutel (1993) is discussed. A number of stationary C-$\mathrm{AR}(1)$ processes with specific marginals are presented and are shown to generalize several existing $\mathbf{R}_+$-valued $\mathrm{AR}(1)$ models. The question of time reversibility is addressed and some examples are discussed.

OPTIMIZED CLUSTERS FOR DISAGGREGATED ELECTRICITY LOAD FORECASTING
Authors: *Michel Misiti; Yves Misiti; Georges Oppenheim; Jean-Michel Poggi*

To account for the variation of EDF's (the French electrical company) portfolio following the liberalization of the electrical market, it is essential to disaggregate the global load curve. The idea is to disaggregate the global signal in such a way that the sum of disaggregated forecasts significantly improves the prediction of the whole global signal. The strategy is to optimize, a preliminary clustering of individual load curves with respect to a predictability index. The optimized clustering procedure is controlled by a forecasting performance via a cross-prediction dissimilarity index. It can be assimilated to a discrete gradient type algorithm.

IMPROVING ON MINIMUM RISK EQUIVARIANT AND LINEAR MINIMAX ESTIMATORS OF BOUNDED MULTIVARIATE LOCATION PARAMETERS
Authors: *Éric Marchand; Amir T. Payandeh Najafabadi*

We propose improvements under squared error loss of the minimum risk equivariant and the linear minimax estimators for estimating the location parameter θ of a p-variate spherically symmetric distribution, with θ restricted to a ball of radius m centered at the origin. Our construction of explicit improvements relies on a multivariate version of Kubokawa's Integral Expression of Risk Difference (IERD) method. Applications are given for univariate distributions, for the multivariate normal, and for scale mixture of multivariate normal distributions.

ESTIMATION OF THE PARAMETER OF A *pARMAX* MODEL
Author: *Marta Ferreira*

Max-autoregressive models for time series data are useful when we want to make inference about rare events, mainly in areas like hydrology, geophysics and finance. In fact, they are more convenient for analysis than heavy-tailed ARMA, as their finite-dimensional distributions can easily be written explicitly. The recent power max-autoregressive model ($pARMAX$) has the interesting feature of describing an asymptotic independent tail behavior, a property that can be observed in various data series. An estimator of the model parameter c ($0<c<1$) is already available in the literature, but only in the restrictive case $c>1/2$. Here it is presented an estimator for all $c \in (0,1)$. Consistency and asymptotic normality are also stated.