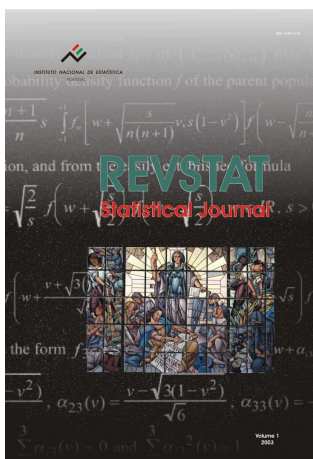24 June, 2008

Multithemes

Volume 6, Number 2, June 2008

REVSTAT- STATISTICAL JOURNAL

REVSTAT-STATISTICAL JOURNAL, Volume 6, No. 2 – June 2008

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.

The aim of the Editorial Board of **REVSTAT** is to publish articles of high scientific content, developing innovative statistical scientific methods and introducing original research, grounded in substantive problems, covering all branches of Probability and Statistics. Surveys of important areas of research in the field are also welcome.

REVSTAT hopes to become a place where scientists may feel proud of publishing their research results changing the character of the previous *Revista de Estatística* from a national to an international scientific journal.

For more information about **REVSTAT**, namely on-line articles, subscription of the publication, and submission of papers, please visit the link of the National Statistical Institute's website: http://www.ine.pt/revstat.html

This Volume of **REVSTAT: Volume 6, No. 2 - June 2008**, includes four articles. Their abstracts are presented below:

ON A CLASS OF Z_+-VALUED AUTOREGRESSIVE MOVING AVERAGE (ARMA) PROCESSES

Authors: *Emad-Eldin A. A. Aly* and *Nadjib Bouzar*.

A convolution semigroup of probability generating functions and its related operator $\odot_F$ are used to construct a class of stationary Z_+-valued autoregressive moving average *ARMA* processes. Several distributional and regression properties are obtained. A number of *ARMA* processes with specific innovation sequences are presented.

MINIMALLY BIASED NONPARAMETRIC REGRESSION AND AUTOREGRESSION

Authors: *Timothy L. McMurry* and *Dimitris N. Politis*.

A nonparametric regression estimator is introduced which adapts to the smoothness of the unknown function being estimated. This property allows the new estimator to automatically achieve minimal bias over a large class

of locally smooth functions without changing the rate at which the variance converges. Optimal convergence rates are shown to hold for both i.i.d. data and autoregressive processes satisfying strong mixing conditions.

ON THE EXTREMES OF RANDOMLY SUB-SAMPLED TIME SERIES

Authors: *Andreia Hall* and *Manuel G. Scotto*.

In this paper, we investigate the extremal properties of randomly sub-sampled stationary sequences. Motivation comes from the need to account for the effect of missing values on the analysis of time series and the comparison of schemes for monitoring systems with breakdowns or systems with automatic replacement of devices in case of failures.

INTERVAL ESTIMATORS FOR A BINOMIAL PROPORTION: COMPARISON OF TWENTY METHODS

Authors: *Ana M. Pires* and *Conceição Amado*.

In applied statistics it is often necessary to obtain an interval estimate for an unknown proportion (p) based on binomial sampling. This topic is considered in almost every introductory course. However, the usual approximation is known to be poor when the true p is close to zero or to one. To identify alternative procedures with better properties twenty non-iterative methods for computing a (central) two-sided interval estimate for p were selected and compared in terms of coverage probability and expected length. From this study a clear classification of those methods has emerged. An important conclusion is that the interval based on asymptotic normality, but after the arcsine transformation and a continuity correction, and the Add 4 method of Agresti and Coull (1998) yield very reliable results, the choice between the two depending on the desired degree of conservativeness.