

2005 SCMA Time Series Workshop

Regression Models for Time Series

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Introduction

The workshop has two parts. In the first, we shall address the question of how to extend the generalized linear models methodology to time series, where the data are dependent, possibly nonstationary, and the covariates are time dependent and also random. Our approach to the problem is to use partial likelihood in conjunction with temporal conditional inference with respect to a filtration generated by all that is known to the observer at the time of observation. In the second part we address the problem of prediction in short time series with gaps due to missing values. Here we shall describe a certain useful Bayesian approach.

Outline

1. Partial likelihood
2. Time series following generalized linear models.
3. Partial likelihood inference.
4. An example: Analysis of mortality count data.
5. Regression models for binary time series.
6. Regression models for categorical time series.
7. A Bayesian approach to spatial/temporal prediction.

Reference: B. Kedem and K. Fokianos, *Regression Models for Time Series Analysis*, Wiley, 2002.