

Linear prediction for electricity consumption with Levy distribution

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Abstract

Symmetric alpha stable distributions with $\alpha < 2$ could not be applied by classical statistics methods for model fitting and prediction (Autocorrelation matrix analysis, MSE analysis, ...). Levy distribution is one element of this class of distributions with $\alpha = 1/2$. Today many methods have been introduced for analysing these distributions but infinite variance and unknown density function are the most important characteristic for this family which can provide many problems for statistical analysis. In this paper it have been shown a singular method for prediction in a time domain by real example for electriciry consumption in Iran. Electricity consumption in a specific level in Iran have Levy distribution (it will be shown simply) and by analysing on large data in this section and also applying the new concept of statistical parameter which is named *dispersion* we try to fit the model for prediction.

Keywords

Stable distribution, Dispersion, Regular variation, ARMA models, Domains of attraction.