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Keywords

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Abstract

In this paper we study an analytical method to detect the change-point in the model of simple linear regression. The study method is used to estimate the parameters of a Weibull model representative a change-point. The procedure proposed in this paper is illustrated through a classical change-point data. For the accuracy of the method a simulation study is performed.

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An analytical method for detecting the change-point in simple linear regression model. Application at Weibull distribution.

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Abstract

In this paper we study an analytical method to detect the change-point in the model of simple linear regression. The study method is used to estimate the parameters of a Weibull model representative a change-point. The procedure proposed in this paper is illustrated through a classical change-point data. For the accuracy of the method a simulation study is performed.

Keywords: Change-point; simple linear regression model; Weibull distribution.

1 Introduction

Change-point models have originally been developed in connection with applications in quality control, where a change from the *in-control* to the *out-of-control* state has to be detected based on the available random observations. Up to now various change-point models have been suggested for a broad spectrum of applications like quality control, reliability, econometrics, medicine, signal processing, meteorology, etc.

The general change-point problem can be described as follows: A random process indexed by time is observed and we want to investigate whether a change in the distribution of the random elements occurs.

Formally, let X_1, \dots, X_n denote a sequence of independent random variables, where