Tests for the Change-Point of AR (1) Model

by

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Abstract: The problem considered is that of testing and detecting the change of a sequence of variables from Autoregressive (1) model. In my paper, I specialized at studying the abrupt change, and the 'change' is considered as the point where the correlation coefficient of AR(1) model changes, or the drift changes(mean shift). Two different test statistics are developed. One is log-likelihood ratio test statistic, the other comes from partial sum of the residuals, which use the property that the partial sum of the residuals of AR(1) model converge to Brownian motion. Distribution of the statistics are studied, rejection region are presented, powers are compared and analyzed, and the simulation results are provided to evaluate the effectiveness of the statistics for testing both parameters.

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