HIGHER ORDER APPROXIMATION OF THE DISTRIBUTION OF ANOVA TESTS FOR HIGH-DIMENSIONAL TIME SERIES

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Received August 13, 2018

Abstract. Analysis of variance (ANOVA) is tailored for independent observations. Recently, there has been considerable demand for the ANOVA of high-dimensional and dependent observations in many fields. Thus, it is important to analyze the differences among big data's averages of areas from all over the world, such as the financial and manufacturing industries. However, the numerical accuracy of ANOVA for such observations has been inadequately developed. Thus, herein, we study the Edgeworth expansion of distribution of ANOVA tests for high-dimensional and dependent observations. Specifically, we present the second-order approximation of classical test statistics proposed for independent observations. We also provide numerical examples for simulated high-dimensional time-series data.