Ann. Inst. Statist. Math.
Vol. 41, No. 4, 753-764 (1989)

ASYMPTOTIC PROPERTIES OF SOME GOODNESS-OF-FIT TESTS BASED ON THE L_1-NORM

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(Received November 14, 1988; revised January 17, 1989)

Abstract. Some goodness-of-fit tests based on the L_1-norm are considered. The asymptotic distribution of each statistic under the null hypothesis is the distribution of the L_1-norm of the standard Wiener process on $[0, 1]$. The distribution function, the density function and a table of some percentage points of the distribution are given. A result for the asymptotic tail probability of the L_1-norm of a Gaussian process is also obtained. The result is useful for giving the approximate Bahadur efficiency of the test statistics whose asymptotic distributions are represented as the L_1-norms of Gaussian processes.

Key words and phrases: Asymptotic distribution, approximate Bahadur efficiency, L_1-norm, empirical process, goodness-of-fit tests, martingale, symmetry, Wiener process.