

Martynov G. V. (IITP RAS, Moscow, Russia) — **Notes on the Cramér-von Mises test with estimated parameters.**

We consider here various ways of applying the Cramér-von Mises test for testing the hypothesis that the distribution of the observed random variable belongs to a parametric family. The universal martingale method of Khmaladze is well known for the transformation of empirical processes (see [1]). It leads to statistics with a limiting distribution that does not depend on the parametric family and also on the unknown value of the parameter. Previously known methods, however, can be easily applied to the most known family distributions of the forms $\{G((x - m)/\sigma), -\infty < x, m < \infty, \sigma > 0\}$ and $\{R((x/\beta)^\alpha), \alpha, x, \beta > 0\}$ (see [3]). These families include the families of distributions such as normal, lognormal, Weibull, Pareto, exponential, double exponential, and other families. . The aim of the paper is to describe the method of using the Cramér-von Mises test in the case when the limiting distribution of statistics depends on an unknown parameter. In this case, tables are used that are specially calculated during the testing of the hypothesis with the approximation of an unknown parameter by its estimate. The results of article [2] can be used here. The corresponding error in the significance level has been also analyzed.

REFERENCES

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3. *Martynov G.V.* Note on the Cramér-von Mises test with estimated parameters. Publ. Math. Debrecen, Hungary. 2010, vol. 61, № 1, pp. 341–346.