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The rate of convergence to the normal law for sampling without replacement. (Russian)

Zbl 0574.60028
Teor. Veroyatn. Primen. 30, No. 3, 427-439 (1985).

Let $(\nu_{\ell 1}, ..., \nu_{\ell m})$ be a random Boolean vector, where $\nu_{\ell m} = 1$ if the m-th element of a finite population of volume N is chosen in the l-th sampling of volume n_ℓ $(\ell = 1, ..., s)$, and $\nu_{\ell m} = 0$ otherwise, $m = 1, ..., N$, $\nu_{\ell 1} + ... + \nu_{\ell N} = n_\ell$, $\ell = 1, ..., s$. Let $f_{jm}^{(N)}(x_1, ..., x_s)$ be a random function of a Boolean vector $(x_1, ..., x_s)$, $j = 1, ..., k$; $m = 1, ..., N$, and $S_{jN} = \sum_{m=1}^{N} f_{jm}^{(N)}(\nu_{1m}, .., \nu_{sm})$, $j = 1, ..., k$. The rate of convergence of order $1/\sqrt{N}$ to a multidimensional normal law is proved for a vector $(S_{1N}, ..., S_{kN})$.

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MSC:

60F05 Central limit and other weak theorems
60C05 Combinatorial probability

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remainder term estimate; finite population; rate of convergence; multidimensional normal law