

On Vervaat process for sums and renewals in the dependent case

Endre Csáki

Rényi Institute of Mathematics

We study the asymptotic behaviour of stochastic processes that are generated by sums of partial sums of (weakly dependent) random variables and their renewals, analogues of the so-called Bahadur-Kiefer process that is the sum of empirical and quantile processes. We study their properly normalized integrals as Vervaat-type stochastic processes and establish their strong approximation by a squared Wiener process. Similar investigations are provided in the strongly dependent (long memory) case, when the limit process of partial sums is a fractional Brownian motion.

This presentation is based on a joint work with M. Csörgő (Carleton University) and R. Kulik (University of Ottawa). Research supported by the Hungarian National Foundation for Scientific Research, Grant No. K61052 and K67961.