STATISTICAL INFERENCE FOR LÉVY DRIVEN MOVING AVERAGE PROCESSES

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Let L be a Lévy process with regularly varying tails of index $\alpha \in (0,2)$, let f be a suitable kernel function and define $X_t := \int f(t-s)\,dL_s$ for $t \in \mathbb{R}$. We wish to derive the asymptotics of the sample autocovariance function of $X_1, \ldots, X_n$. This problem is in the spirit of the work by Davis and Resnick [2] who derived the asymptotics of the autocovariance function of a time-discrete MA(∞) with regularly varying white noise.

References

[1] S. Cohen, A. Lindner *A central limit theorem for the sample autocorelations of a Lévy driven continuous time moving average process*, Journal of Statistical Planning and Inference 143, 1295-1306, 2013

[2] R. Davis, S. Resnick *Limit theory for moving averages of random variables with regularly varying tail probabilities* The Annals of Probability, Vol. 113, No. 1, 179-195, 1985

[3] S. Resnick, G. Samorodnitsky, F. Xue *How Misleading Can Sample ACF's of Stable MA'S Be? (Very!)*, Ann. Appl. Probab. Volume 9, Number 3 , 797-817, 1999