

Self-normalized sums of heavy-tailed random vectors

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Self-normalized sum processes have attracted attention through the last decades. Most work has been devoted to sums of iid variables, and as normalization one often chooses the sample maximum or standard deviation.

We consider the case of a regularly varying stationary process with infinite second moment. First we derive the joint convergence of sums and self-normalizing quantities, then we consider the convergence of the ratios of the sums and self-normalizing sequences. We also study aspects of the distributions of the limiting ratios such as their moments.