



INVERSE PROBLEMS FOR REGULAR VARIATION

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Regular variation is one of the basic concepts used to model heavy tailed phenomena in one dimension as well as in the multivariate case. An important feature of regular variation is that it tends to be preserved by various linear operations on random structures (such as weighted sums, products, integrals, etc.) An inverse problem for regular variation aims at understanding whether the regular variation of a transformed random object is caused by regular variation of components of the original random structure. It is somewhat surprising that such inverse problem can be very sensitive to change of parameters in a random structure (e.g., change of coefficients in a weighted sum). We give complete answers to the inverse problems for weighted sums, products and stochastic integrals in one dimension, and for some special types of weighted sums and products in the multivariate case.

Keywords: Linear process; Breiman's result; random matrix.