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Moderate Deviations for Random Sums of Heavy-Tailed Random Variables

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摘要

关键词 large deviations moderate deviations extended regular variation Poisson process

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Moderate Deviations for Random Sums of Heavy-Tailed Random Variables

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Abstract Let $\{X_n ; n\geq 1\}$ be a sequence of independent non-negative random variables with common distribution function F having extended regularly varying tail and finite mean $\mu=E(X_1)$ and let $\{N(t); t\geq 0\}$ be a random process taking non-negative integer values with finite mean $\lambda(t)=E(N(t))$ and independent of $\{X_n ;n\geq 1\}$. In this paper, asymptotic expressions of $P((X_1+\cdots+X_{N(t)})-\lambda(t)\mu> x)$ uniformly for $x\in[\gamma b(t),\infty)$ are obtained, where $\gamma>0$ and $b(t)$ can be taken to be a positive function with $\lim_{t\to\infty}b(t)/\lambda(t)=0$.

Key words large deviations moderate deviations extended regular variation Poisson process

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