

Negative Moments for Branching Processes

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Abstract: Consider the Galton-Watson branching process $(Z_n)_{n \geq 0}$ with offspring distribution $(p_k)_{k \geq 0}$ starting with $Z_0 = 1$. In the super critical case, i.e. $m = \sum_{k \geq 0} p_k > 1$, Estimates for $E(h(Z_n)Z_n^{-\gamma})$ as $n \rightarrow \infty$ are given for slowly varying monotone function h , together with applications to deviation estimates of Z_{n+1}/Z_n .