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RANDOM WALKS WITH RANDOM INDICES AND NEGATIVE DRIFT CONDITIONED TO STAY POSITIVE

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Abstract: Let $\{X_k, k \geq 1\}$ be a sequence of independent, identically distributed random variables with $E|X_1| = \mu < 0$, and let $\{N_n, n \geq 0\}$, $N_0 = 0$ a.s., be a sequence of positive integer-valued random variables. Form the random walk $\{S_{N_n}, n \geq 0\}$ by setting $S_0 = 0$, $S_{N_n} = X_1 + ... + X_{N_n}$, $n \geq 1$.

The main result in this paper shows (under appropriate conditions on $\{N_n, n \geq 0\}$ and $\{X_k, k \geq 1\}$) that S_{N_n} conditioned on $[S_1 > 0, ..., S_{N_n} > 0]$ converges weakly to a random variable S^* considered by Iglehart [4].

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