Managing Learning and Turnover in Employee Staffing*

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Abstract

We study the employee staffing problem in a service organization that uses employee service capacity to meet random, non-stationary service requirements. The employees experience learning and turnover on the job, and we develop a Markov Decision Process (MDP) model that explicitly represents the stochastic nature of these effects. Theoretical results show that the optimal hiring policy is of a state-dependent "hire-up-to" type, similar to an inventory "order-up-to" policy. For two important special cases, a myopic policy is optimal. Numerical results distinguish cases in which simpler heuristics prove to be effective from those in which the complexity of an MDP-type formulation may be required.

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