**van Dijk, Nico M.**; **Puterman, Martin L.**

**Perturbation theory for Markov reward processes with applications to queueing systems.**

(English) Zbl 0642.60100
Adv. Appl. Probab. 20, No. 1, 79-98 (1988).

Consider a discrete time, discrete state Markov chain where a bounded reward r(i) is obtained every time when the chain enters state i. The problem: If the transition probabilities and/or the reward function are perturbated to a certain amount, what will the change of the finite- horizon reward, the discounted infinite-horizon reward, the average reward and the total reward up to a random time be? Some easy to verify conditions are given which make the theorems concerned with the above questions better suited for applications e.g. in queueing theory.

Reviewer: H.Daduna

**MSC:**

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|---|---|
| 60K30 | Applications of queueing theory (congestion, allocation, storage, traffic, etc.) |
| 90C47 | Minimax problems in mathematical programming |
| 90B22 | Queues and service in operations research |
| 90C31 | Sensitivity, stability, parametric optimization |



**Keywords:**

perturbation theory; Markov decision processes; reward function

**Full Text:** DOI