

Kella, Offer

Optimal control of the vacation scheme in an M/G/1 queue. (English) Zbl 0719.90033
Oper. Res. 38, No. 4, 724-728 (1990).

The present technical note deals with an M/G/1 queue with servers vacations. The decision whether or not to take a new vacation, when the system is empty, depends on the number of vacations already taken through a random outcome. Both descriptive and optimization issues are considered, where the latter is done under the expected long-run average cost criterion with linear holding costs, fixed setup costs and a concave piecewise linear reward function for being on vacation. It is shown that under this cost structure a policy of the control limit type is optimal. Finally, priorities are introduced and it is remarked that for the analysis, together with the results of this paper, existing results may be applied almost directly.

Reviewer: [J.Sztrik \(Debrecen\)](#)

MSC:

[90B22](#) Queues and service in operations research
[60K25](#) Queueing theory (aspects of probability theory)
[90C90](#) Applications of mathematical programming
[90C32](#) Fractional programming

Cited in **12** Documents

Keywords:

M/G/1 queue; servers vacations; expected long-run average cost criterion; control limit type

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