

**Jain, Sudha; Templeton, J. G. C.**

**Statistical inference for G/M/1 queueing system.** (English) Zbl 0657.62104  
*Oper. Res. Lett.* 7, No. 6, 309-313 (1988).

Maximum likelihood estimates of the parameters are derived for the G/M/1 queueing model with variable arrival rate. A simulated numerical example is used to illustrate its application for estimating the parameter when the interarrival time distribution is exponential. Problems of hypothesis testing are also investigated.

**MSC:**

**62M05** Markov processes: estimation; hidden Markov models  
**60K25** Queueing theory (aspects of probability theory)

Cited in 1 Review

**Keywords:**

transition probability matrix; Maximum likelihood estimates; G/M/1 queueing model; variable arrival rate; hypothesis testing

**Full Text:** [DOI](#)

**References:**

- [1] Basawa, I.V; Prakasa Rao, B.L.S, Statistical inference for stochastic processes, (1980), Academic Press New York · [Zbl 0448.62070](#)
- [2] Bhat, U.N, Imbedded Markov chains in queueing systems M/G/1 and GI/M/1 with limited waiting room, *Metrika*, 22, 153-160, (1975) · [Zbl 0328.60050](#)
- [3] Billingsley, P, Statistical inference for Markov processes, (1961), University of Chicago Press · [Zbl 0129.10701](#)
- [4] Çinlar, E, Introduction to stochastic processes, (1975), Prentice-Hall Englewood Cliffs, NJ · [Zbl 0341.60019](#)
- [5] Clarke, A.B, Maximum likelihood estimates in a simple queue, *Ann. math. statist.*, 28, 1036-1040, (1957) · [Zbl 0078.33602](#)
- [6] Goyal, T.L; Harris, C.M, Maximum likelihood estimation for queues with state-dependent service, *Sankhyā A*, 34, 65-80, (1972) · [Zbl 0248.60073](#)
- [7] Gross, D; Harris, C.M, Fundamentals of queueing theory, (1985), Wiley · [Zbl 0658.60122](#)
- [8] Lehmann, E.L, Theory of point estimation, (1983), Wiley · [Zbl 0522.62020](#)
- [9] Shanthikumar, G.J; Sumita, U, On the busy period distributions of M/G/1/K queues with state-dependent arrivals and FCFS/LCFS-P service discipline, *J. applied probab.*, 22, 912-919, (1985) · [Zbl 0576.60090](#)
- [10] Wolff, R.W, Problems of statistical inference for birth and death queueing models, *Oper. res.*, 13, 343-357, (1965) · [Zbl 0135.19105](#)

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