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**Stochastic inequalities for  $M/G/1$  retrial queues.** (English) Zbl 0819.60090  
*Oper. Res. Lett.* 16, No. 5, 285-290 (1994).

Summary: Consider an  $M/G/1$  retrial queue. The performance characteristics of such a system are available in explicit form; however they are cumbersome (these formulas include integrals of Laplace transform, solutions of functional equations, etc.) We use the general theory of stochastic orderings to investigate the monotonicity properties of the system relative to the strong stochastic ordering, convex ordering and Laplace ordering. These results imply in particular simple insensitive bounds for the stationary distribution of the number of customers in the system and the mean number of customers served during a busy period.

**MSC:**

**60K25** Queueing theory (aspects of probability theory)  
**60E15** Inequalities; stochastic orderings

Cited in **8** Documents

**Keywords:**

retrial queues; stochastic ordering; embedded Markov chain; stationary distribution; performance characteristics

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

**References:**

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- [2] Falin, G., A survey of retrial queues, *Queueing systems theory appl.*, 7, 127-168, (1990) · [Zbl 0709.60097](#)
- [3] Stoyan, D., *Comparison methods for queues and other stochastic models*, (1983), Wiley New York

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