

## MULTI-SERVER BATCH SERVICE QUEUEING MODEL WITH VARIABLE SERVICE RATES

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### ABSTRACT

In this paper, we study the batch queueing model, where multi-servers are used to provide the service. Arrival follows a Poisson distribution and service time is exponentially distributed. If there are less than the batch of  $B$  customers, they are served individually. However, if there are the batch of  $B$  customers, all the customers are served together. We calculate the probability distribution and the performance measures of queue length and waiting time for both conditions: having less than the batch of  $B$  customers and having more than the batch of  $B$  customers using recursive method. Finally, we verify the results with some numerical illustrations presenting some applications in the real life situation.

**KEYWORDS:** Batch, Customer, Performance, Queueing, Server