# Lead Time Reduction on the Periodic Review Inventory Model with Fuzzy Backorders

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## Abstract

Recently, the periodic review inventory models with a mixture of backorders and lost sales have been extended to include the variable lead time, where the backorder rate is assumed to be a fixed constant. However, in practical situation, the backorder (or lost sales) rate may incur disturbance due to various uncertainties. To capture this reality, this paper attempts to employ the statistical technique, jointly with fuzzy set concepts to deal with the lost sales rate, so as to modify the aforementioned inventory model. We investigate the optimal inventory strategy in the fuzzy sense for the case where the demand during the protection interval (i.e., lead time plus review period) follows a normal distribution.

*Keywords:* Inventory, Periodic Review, Lead Time, Fuzzy Backorder, Membership Function.