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### Basestock Policies with Reservations

Nicky D. Van Foreest, Ruud H. Teunter, Aris A. Syntetos

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**Highlights**

- We consider single-item inventory systems and motivate that, for many practical purposes, the cost structure should include costs per backorder per unit time and costs per backorder.
- Under such cost structures, it is no longer optimal to serve backordered demand in a FIFO sequence.
- We propose another class of policies, so-called reservation policies, to handle replenishments and backorders. Such policies aim to keep sufficient items on-hand to meet new demand, i.e., prevent the occurrence of backorders. Only when the on-hand inventory is above a certain level, a reservation policy starts to use replenishment orders to meet backlogged demand. Thus, it does not satisfy backorders when the on-hand inventory level is too low.
- We provide analytical and numerical models to show that reservation policies can significantly reduce average cost, while the average backlogging times do not increase considerably.

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