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Inventory control with limited capacity and advance demand information. (English)

[Zbl 1165.90332](#)

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Summary: Manufacturers make production decisions and carry inventory to satisfy uncertain demand. When holding and shortage costs are high, carrying inventory could be even more expensive for a capacitated production system. Recent developments in information technology and sales strategies enabled firms to acquire, collect, or induce advance demand information. We address a periodic-review, stochastic, capacitated, finite and infinite horizon production system faced by a manufacturer who has the ability to obtain advance demand information. We establish optimal policies and characterize their behavior with respect to capacity, fixed costs, advance demand information, and the planning horizon. With a numerical study, we quantify the value of advance demand information and additional capacity for specific problem instances. We illustrate how advance demand information can be a substitute for capacity and inventory.

MSC:

[90B05](#) Inventory, storage, reservoirs

[90C39](#) Dynamic programming

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