

Pricing, Production and Inventory Policies Manufacturing under Stochastic Demand and Continuous Prices

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Abstract : We study jointly determining prices and production in a multiple period horizon under a general non-stationary stochastic demand with continuous prices. In some periods we need to increase capacity of production to satisfy demand. This paper presents a model to aid multi-period production capacity planning by quantifying the trade-off between product quality and production cost. The product quality is estimated as the statistical variation from the target performances obtained from the output tolerances of the production machines that manufacture the components. We consider different tolerance for different machines that use to increase capacity. The production cost is estimated as the total cost of owning and operating a production facility during the planning horizon. so capacity planning has cost that impact on price. Pricing products often turns out to be difficult to measure them because customers have a reservation price to pay that impact on price and demand. We decide to determine prices and production for periods after enhance capacity and consider reservation price to determine price. First we use an algorithm base on fuzzy set of the optimal objective function values to determine capacity planning by determine maximize interval from upper bound in minimum objectives and define weight for objectives. Then we try to determine inventory and pricing policies. We can use a lemma to solve a problem in MATLAB and find exact answer.

Keywords : price policy, inventory policy, capacity planning, product quality, epsilon -constraint

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