

# Coordinating Inventory Control and Pricing Strategies with Random Demand and Fixed Ordering Cost: the Infinite Horizon Case

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*Abstract* – We analyze an infinite horizon, single product, periodic review model in which pricing and production/inventory decisions are made simultaneously. Demands in different periods are identically distributed random variables that are independent of each other and their distributions depend on the product price. Pricing and ordering decisions are made at the beginning of each period and all shortages are backlogged. Ordering cost includes both a fixed cost and a variable cost proportional to the amount ordered. The objective is to maximize expected discounted, or expected average profit over the infinite planning horizon. We show that a stationary  $(s,S,p)$  policy is optimal for both the discounted and average profit models with general demand functions. In such a policy, the period inventory is managed based on the classical  $(s,S)$  policy and price is determined based on the inventory position at the beginning of each period.