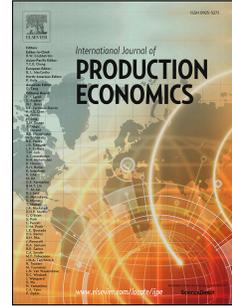


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Capacity Expansion Investment of Supplier under Make-to-order and Make-to-stock Supply Chains

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Abstract. Capacity, and production mechanisms significantly affect the decisions and performance of a supply chain with a supplier and a buyer. This study examines the influence of capacity expansion investment and supplier's make-to-order supply chain (MTO mechanism) or make-to-stock supply chain (MTS mechanism) on the equilibrium decisions and performance of supply chains. For each supplier's production mechanism, we derive the corresponding equilibrium wholesale price, order quantity, and capacities. We show that, when a supplier has sufficient existing capacity or the cost of capacity investment is small, the optimal capacity investment and total profit of a supply chain under MTS mechanism are always higher than that under MTO mechanism. By contrast, a MTS mechanism may induce low capacity and gain total profits lower than that of MTO mechanism. Our computational experiment shows that MTO mechanism outperforms MTS in scenarios with low uncertainty of demands; otherwise, MTS mechanism outperforms MTO mechanism. And if the cost of capacity is relatively small, the supply chain efficiency under MTS mechanism is always higher than that under MTO mechanism.

Keywords. Capacity Investment; Make-to-order; Make-to-stock; Push contract; Pull contract

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