

## 不同渠道权力结构下的S-M两级闭环供应链绩效分析

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## Performance Analysis of S-M Closed-loop Supply Chain under Different Channel Power Structures

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**摘要** 与传统正向供应链相比,闭环供应链关注对消费阶段后的废旧产品进行回收再制造,从而减少环境污染、降低资源消耗,对推动制造业的可持续发展具有非常重要与深远的意义。为了探讨产品再制造战略对闭环供应链中成员企业的影响,本文采用博弈论对一个供应商和一个制造商构成的S-M两级闭环供应链进行研究,着重分析供应商强势、制造商强势以及供应商和制造商双方势力均衡时的定价策略和供应链系统绩效。研究结果表明:当实施产品再制造战略时,产品的销售价格降低、产品的市场销量增加,零部件的批发价格则上涨。从成员企业个体来看,再制造战略总是有助于制造商获得更多额外收益,而对供应商的影响效应则与供应商在渠道中的权力地位有关,处于强势地位的供应商可以通过大幅提高零部件批发价格的方式来保证自己从再制造中获益,而处于弱势地位的供应商则有可能遭受利益损失。从系统整体绩效来看,再制造战略具有提升供应链系统整体赢利水平的积极作用,但是供应商和制造商之间的权力结构会影响再制造的经济价值。具体而言,供应商和制造商势力均衡时的供应链绩效最优,其次是制造商主导的供应链,最差的是供应商主导的供应链。

**关键词:** 闭环供应链 产品再制造 渠道权力 博弈论

**Abstract:** Different from traditional supply chain, closed-loop supply chain focuses on remanufacturing or reusing the used products after their consumption, which is of great importance in reducing environmental pollution, decreasing resource consumption and fundamentally promoting the sustainable development of manufacturing industries. In order to explore the influence of remanufacturing strategy on the member enterprises in a closed-loop supply chain, we use game theory to develop the models of a two-echelon closed-loop supply chain with one manufacturer and one supplier. We particularly analyze the pricing decisions and system's performance under different power structures, including supplier-dominated, manufacturer-dominated or balance of power between channel members. The results show that with remanufacturing strategy implementation, the sale price of products will decrease, the sales volume increase, and the wholesale price of components goes up. For the channel members, the remanufacturing strategy is more conducive to the manufacturer's profitability. However, the influence of remanufacturing on supplier depends on the power of supplier in a chain. The dominant supplier can get extra profit from remanufacturing by considerably raising the wholesale price of components; and the weak supplier may incur loss due to the competition of remanufacturing. As for the performance of the whole supply chain, the remanufacturing strategy plays an important role in improving the whole system's profitability, but the power structures have different effects on the economic value of remanufacturing. In general, the structure where power is equally split between members provides the best performance, then is the manufacturer-dominated, the worst is the supplier-dominated supply chain.

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