# 供应链库存商业信用协调的研究

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# Coordinating A Supply Chain with Trade Credit Policy

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摘要 本文研究由一个供应商和多个客户构成的以供应商主导的两级供应链,建立了以平均库存成本为目标函数的供应链供需同步库存模型。为了保证合理的收益分配,促进各成员加入供需合作的积极性,在模型中引入了商业信用机制,由供应商给予客户商业信用期而产生的机会成本(或利益)来平衡各成员间的利益。理论分析显示该模型存在最佳订货次数和最佳生产时间间隔,使供应链的总平均库存成本最小。最后利用算例分析和敏感性分析验证了商业信用的有效性。

关键词: 供应链   供需同步模型   库存成本   商业信用

Abstract: In the traditional vendor-centralized supply chain, the vendor controls the operation of the supply chain and thus easier access to more profits compared with the customers. The burden of some customers might increase once they join delivery and demand synchronization. In order to obtain win-win result, the coordination becomes greatly important. The trade credit, as one of important policies, has already been widely used in the supply chain management. It can be described as a trade credit period offered by the vendor, during which the customer does not need to pay any interests for the payment delay. Therefore the customer can make use of the trade credit period to gain additional opportunity profits. A vendor-centralized two-echelon supply chain consisting of a single vendor and multiple customers is studied in this paper. The opportunity profit or cost obtained from the trade credit period is used to coordinate every member. A framework of the delivery and demand synchronization in the supply chain with the trade credit policy is proposed and the formulations show the optimum solutions, i.e. the production interval and optimum order times, are existed. Without any restrictions, the studied model can be simplified as the tradition delivery and demand synchronization model and independent decision inventory model. Finally, the numerical examples are presented to compare three different kinds of models mentioned above and illustrate the effectiveness of the trade credit policy. In addition, the sensitivity analysis about the impact of the ratio of the production rate to whole demand rates and the radio of the trade credit period to the customer's order time interval on the cost are provided. In summary, the trade credit policy is very useful in coordinating the delivery and demand among the vendor and all customers. By designing suitable trade credit period, the coordination can has a win-win result.

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