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论文

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基于不对称需求信息的供应链最小订购量决策

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Decisions on the Minimum Order Quantity of Supply Chain Based on Asymmetric Demand Information

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- 摘要
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摘要 在由一个供应商和一个零售商组成的两级分散供应链中, 供应商通过制定最小订购量取得规模效应, 保障自身利益。当零售商和供应商之间存在需求信息不对称时, 即零售商掌握需求信息而供应商仅知道需求信息中价格敏感因子的分布, 如何进行最小订购量决策成为供应商面临的一个重要问题。针对这一问题, 从营销视角构建了基于Stackelberg博弈的利润最大化模型。假设供应商知道需求的价格敏感因子服从正态分布, 通过严密的数学推导确定了模型中的最优最小订购量。将提出的最优最小订购量决策方法应用于云存储的销售供应链中, 确定了云存储供应商销售的最优最小存储容量, 阐释了方法的合理性与有效性。通过实验研究发现, 最小订购量的设置提升了供应商的利润。所提方法对于考虑最小订购量的供应链协调研究具有积极的推动作用。

关键词: 信息不对称 最小订购量 价格弹性需求 Stackelberg博弈

Abstract: In a two-hierarchical decentralized supply chain composed of a supplier and a retailer, the supplier generally protects his/her own profits by means of determining minimum order quantity (MOQ). Sometimes demand information is asymmetrical between the supplier and the retailer; that is, the retailer catches the complete demand information but the supplier only knows the distribution of price-sensitive factor in the demand information. In this situation, how to determine MOQ becomes an important problem that the supplier faces. For this problem, from the marketing point of view, a profit maximization model is constructed based on Stackelberg game. Suppose the supplier knows that the price-sensitive factor in the demand follows normal distribution. The optimal MOQ in the model is then determined by strict mathematical deduction. The proposed determination method of the optimal MOQ is applied in the sales supply chain to determine the optimal minimum storage capacity sold by cloud storage supplier, which demonstrates the rationality and validity of the proposed method. Experimental results show that setting MOQ by the proposed method exactly increases the profits of the supplier. More important, the proposed method can significantly promote the research on supply chain coordination considering MOQ.

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.基于不对称需求信息的供应链最小订购量决策[J]. 中国管理科学, 2015, V23(6): 99-106

- [1] Halati A, He Yuangjie. Analysis of supply chains with quantity based fixed incentives [J]. European Journal of Operational Research, 2010, 202(1): 214—222. [crossref](#)
- [2] Esmaeili M, Zeephongsekul P. Seller-buyer models of supply chain management with an asymmetric information structure [J]. International Journal of Production Economics, 2010, 123(1): 146—154. [crossref](#)
- [3] Zhao Yao, Katehakis M N. On the structure of optimal ordering policies for stochastic inventory systems with minimum order quantity [J]. Probability in the Engineering and Informational Sciences, 2006, 20(2): 257—270.
- [4] Fisher M, Raman A. Reducing the cost of demand uncertainty through accurate response to early sales [J]. Operations Research, 1996,

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- 44(1): 87—99. 
- [5] Porras E, Dekker R. Controlling inventories in a supply chain: A case study [J], *International Journal of Production Economics*, 2005, 93-94(8): 179—188.
- [6] Porras E, Dekker R. An efficient optimal solution method for the joint replenishment problem with minimum order quantities [J], *European Journal of Operational Research*, 2006, 174(3): 1595-1615. 
- [7] Chen F Y, Krass D. Analysis of supply contracts with minimum total order quantity commitments and stationary demands [J], *European Journal of Operational Research*, 2001, 131(2): 309—323. 
- [8] Zhou Bin, Katehakis M N, Zhao Yao. Managing stochastic inventory systems with free shipping option [J]. *European Journal of Operational Research*, 2009, 196(1): 186—197. 
- [9] 华国伟,李健,田歆,等. 带有免费送货选择的最优订货策略 [J]. *系统工程理论与实践*, 2010, 30(3): 506—512.
- [10] Zhou Bin, Zhao Yao, Katehakis M N. Effective control policies for stochastic inventory systems with a minimum order quantity and linear costs [J]. *International Journal of Production Economics*, 2007, 106(2): 523—531. 
- [11] Kiesmüller G P, de Kok A G, Dabia S. Single item inventory control under periodic review and a minimum order quantity [J]. *International Journal of Production Economics*, 2011, 133(1): 280-285. 
- [12] Li Xiuhui, Wang Qinan. Coordination mechanisms of supply chain systems [J], *European Journal of Operational Research*, 2007, 179(1): 1—16. 
- [13] 周永务,杨善林. 基于不对称需求信息的供应链协调定价 [J]. *系统工程学报*, 2006, 21(6): 591—597. 
- [14] 丁平, 祁玉青, 闵杰. 价格弹性需求下基于最小订购量的契约及供应链收益分析 [J]. *计算机集成制造系统*, 2013, 19(4): 850—858.
- [15] 杜瑞芝. 关于积分中值定理的注记[J]. *高等数学研究*, 2001, 4(4): 14—17.
- [16] 陈康, 郑纬民. 云计算:系统实例与研究现状 [J]. *软件学报*, 2009,20(5): 1337- 1348. 
- [17] Buyya R, Yeo C S, Venugopal S, et al. Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility [J]. *Future Generation Computer Systems*, 2009, 25(6): 599-616. 
- [1] 申笑宇, 黄河, 徐鸿雁. 制造商流程改进与采购合同联合优化[J]. *中国管理科学*, 2015,23(5): 161-167
- [2] 慕银平, 刘利明. 价格柔性合同下的原材料采购策略及风险分析[J]. *中国管理科学*, 2015,23(3): 108-117
- [3] 蔡建刚, 叶泽. 信息不对称条件下激励相容的输配电价模型研究[J]. *中国管理科学*, 2014,22(5): 91-97
- [4] 张克勇, 吴燕, 侯世旺. 具公平关切零售商的闭环供应链差别定价策略研究[J]. *中国管理科学*, 2014,22(3): 51-58
- [5] 叶泽, 袁玮志, 张新华, 王亚莉. 限制性定价策略中在位厂商的最优产量选择[J]. *中国管理科学*, 2013,21(3): 88-95
- [6] 朱军, 顾为东, 史致远. 代理人信息租金抽取的贝叶斯优化与配置效率均衡分析[J]. *中国管理科学*, 2012,(4): 136-143
- [7] 廖列法, 王刊良. 网络信息不对称性、嵌入性与组织学习绩效研究[J]. *中国管理科学*, 2011,19(2): 174-182
- [8] 吕芹, 霍佳震. 基于制造商和零售商自有品牌竞争的供应链广告决策[J]. *中国管理科学*, 2011,19(1): 48-54
- [9] 张汉江, 官旭, 廖家旭. 线性需求供应链中企业交叉持股的定价和绩效变化研究[J]. *中国管理科学*, 2010,18(6): 65-70
- [10] 吴江华, 翟昕, 何玉红. 供应链中基于信息更新的订货时间及价格联合决策研究[J]. *中国管理科学*, 2010,18(5): 58-65
- [11] 宋华明, 杨慧, 罗建强, 段子琪. 需求预测更新情形下的供应链Stackelberg博弈与协调研究[J]. *中国管理科学*, 2010,18(4): 86-92
- [12] 沈铁松, 熊中楷. 考虑厂商承诺行为的产品延伸服务市场竞争分析[J]. *中国管理科学*, 2010,18(4): 93-100
- [13] 陈金亮, 宋华, 徐渝. 不对称信息下具有需求预测更新的供应链合同协调研究[J]. *中国管理科学*, 2010,18(1): 83-89
- [14] 黄松, 杨超, 杨琨. 基于Stackelberg博弈的变质物品分销网络设计模型[J]. *中国管理科学*, 2009,17(6): 122-129
- [15] 李枫, 孙浩, 达庆利. 不完全信息下再制造逆向供应链的定价与协调研究[J]. *中国管理科学*, 2009,17(3): 72-80