

基于制造商资金有约束的替代产品的最优生产决策

魏杰(1), 涂奉生(2), 魏灿生(2), 孙俊清(3)

(1)军事交通学院基础部, 天津 300161; (2)南开大学信息学院, 天津 300071; (3)天津理工大学天津市智能计算及软件新技术重点实验室, 天津 300191.

收稿日期 2008-7-21 修回日期 2008-12-15 网络版发布日期 2009-8-25 接受日期

摘要 考虑一个单周期的生产决策模型, 在该模型中有一个制造商生产两种可替代的产品. 面对随机的市场需求, 制造商要在需求到来之前制定出两种产品的生产决策来最大化自己的期望利润. 在制造商的资金有、无约束两种情形下, 证明了制造商的收益函数的期望是关于两种产品生产数量的凹函数, 探讨了资金的约束以及产品的替代给制造商的生产决策所带来的影响, 给出了最优生产数量的若干性质. 另外, 针对需求分布为均匀分布的特殊情形给出了制造商最优生产决策的简单表达形式.

关键词 [替代产品](#), [最优生产决策](#), [资金有约束](#).

分类号 [90C30](#)

Optimal Production Decision for Two Substitutable Productions with Capacity Constraint of Manufacturer

WEI Jie(1), TU Fengsheng(2), WEI Cansheng(2), SUN Junqing(3)

(1)General Courses Department, Academy of Military Transportation, Tianjin 300161; (2)College of Information Technical Science, Nankai University, Tianjin 300071; (3) Tianjin Key Laboratory of Intelligence Computing and Novel Software Technology, Tianjin University of Technology, Tianjin 300191.

Abstract A single period production decision model with one manufacturer who produces two substitutable products is considered in this paper. In order to optimize the manufacturer's expected profit, the manufacturer needs to make the decision of two products' production quantities with random market demand. This paper explores the problem under the case where the capacity constraint is considered for the manufacturer, and the opposite situation. The concavity of the manufacturer's expected profit function is proved, and the effect of both manufacturer's capacity constraint and products' substitution to the manufacturer's decisions is also investigated. Some properties of the optimal production quantities are given. Based on uniform demand distribution, a simple expression of the manufacturer's optimal production decisions is established.

Key words [Substitutable products](#) [optimal production decisions](#) [capacity constraint](#).

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(506KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

相关信息

▶ 本刊中 包含“[替代产品, 最优生产决策, 资金有约束.](#)”的 [相关文章](#)

▶ 本文作者相关文章

- [魏杰](#)
- [涂奉生](#)
- [魏灿生](#)
- [孙俊清](#)