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博 士 学 位 论 文

产品线设计对制造商渠道结构的影响研究

Impacts of Product Line Design on Manufacturer's Preference  
about Channel Structures

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## 摘要

随着市场竞争的日趋激烈，很多制造商都面临着重新选择与整合渠道的难题：是否在原有渠道结构的基础上增加新的分销渠道，或是削减原有的零售渠道？特别是伴随着互联网技术的高速发展引领消费者“网购”的普遍流行，也促使商家通过网络平台来销售他们的产品。以往的研究关注在既定的分销模式下，分析消费者的选择行为或制造商的策略偏好，很少有人考虑制造商是否应该拓展渠道结构的决策问题。尤其是考虑不同产品线设计时，制造商在高质量产品线和低质量产品线下的渠道偏好是否存在异同？因此本文将重点研究“产品线设计对制造商渠道结构的影响”。

本文突破了既定渠道模式的限制，首先从上游制造商的产品线设计出发，分析制造商应如何将相应的高质量产品或低质量产品分销到终端市场，是通过专业零售商代理，还是自建销售渠道？进一步我们从上游制造商直接渠道(D)的构建、中间零售商间接渠道(R)的博弈(RR)或是同上游制造商直接渠道的竞争与合作(RD)、下游消费终端购物体验三个即区别又联系的视角，试图解析制造商在产品线差异化设计影响下如何建立、选择不同质量产品的市场分销模式，以及怎样对现有的市场分销模式实施更加有效的渠道整合与升级，以实现渠道帕累托改进。随后，论文分别从全局供应链管理的效用维度和局部消费个体偏好差异化的效用维度，考察制造商在不同渠道市场需求作用时的渠道模式选择，并以适量的数值模拟方法对模型结果加以补充。

本文发现，不同产品线设计在不同效用函数作用下，制造商的渠道偏好即区别又联系。在总需求效用函数的影响下，制造商的渠道偏好受产品线设计的影响，高质量产品线排序为  $RD \succ R \succ D \succ RR$ ，低质量产品线排序为  $RR \succ RD \succ D \succ R$ ；当终端消费者对不同渠道类型无偏选择时，制造商的渠道偏好不受产品线设计的影响( $RD \succ RR \equiv D \succ R$ )；当终端消费者更偏好制造商的直接渠道类型时，制造商的渠道偏好同样不受产品线设计的影响( $RD \succ D \succ RR \succ R$ )；而当终端消费者更偏好零售商的间接渠道类型时，制造商的渠道偏好受产品线设计的影响，此时高质量产品线排序为  $RR \succ RD \succ R \succ D$ ，低质量产品线排序为  $RD \succ RR \succ D \succ R$ 。

本文进一步指出，当品牌制造商仅考虑高质量产品线时，它们的高质量产品在分销过程中会采用统一定价方式。并且不管在何种效用函数的作用下，制造商在多零售渠道

RR 和传统单零售渠道 R 至多获得一个零利润，此时的制造商只需在混合渠道 RD 和传统直接渠道 D 间做出权衡。

**关键词：**产品线设计；渠道结构；效用函数；制造商行为偏好；博弈论

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## Abstract

Currently with fierce competition increasing, many manufacturers face a question like channel reselection and integration of whether to add a new distribution channel in addition to their incumbent channel structure, or to reduce their incumbent retailing channel. Especially with the development of Internet technology which results in the popularity of online shopping among consumers, which promote manufacturers have started selling directly online platform. Previous studies mainly focused on consumers' behavioral selection or manufacturer's strategy preference in a fixed market distribution model, while little took channel selection into manufacturer's decision problem. Especially taking different product line design into consideration, whether manufacturer has differences and similarities for channel preference between premium quality product line and low quality product line. Then this dissertation will mainly research on Impacts of product line design on manufacturer's preference about channel structures.

This dissertation breaks through a fixed market distribution model limit. An upstream manufacturer first considers its product line design, next analyzes relative premium quality product or relative low quality product how distribution to terminal market; one way is cooperates with professional intermediate retailers, another is establishes direct channel by manufacturer. We further from three different but correlated stages explain how manufacturer establishes and selects its own market distribution model for different quality product based on different product line design, as well how manufacturer effectively integrates and upgrades its incumbent market distribution model, to achieve its Pareto improvement in supply chain management. In upstream, whether manufacturer globally establishes its own direct channel mode (D); in midstream, intermediate retailer will compare its own indirect channel mode (R) with other independent intermediate retailers' game (RR), or with competition and cooperation of upstream manufacturer's direct channel mode (RD); in downstream, manufacturer how to evaluate consumers' satisfaction with shopping. Furthermore, the whole dissertation from the perspective of global utility about supply chain management and local utility about consumer heterogeneity respectively discusses impacts of different channel

demands on manufacturer's preference about channel selection. At the same time, this dissertation also exhibits some numerical simulations in related chapters to supplement our theoretical findings.

This dissertation finds that manufacturer's preferences about channel structures under different product line design are different but correlated based on different utility function. From the perspective of aggregate representative utility function, product line design will impact on manufacturer's preference about channel structures, and the sequence of relative premium quality product line is given by  $RD \succ R \succ D \succ RR$ , while the sequence of relative low quality product line is  $RR \succ RD \succ D \succ R$ . When consumers in terminal market have indifferent preference for different channel types, manufacturer's preference about channel structures without impacts of product line design ( $RD \succ RR \equiv D \succ R$ ). When consumers in terminal market are prefer to manufacturer's direct channel, manufacturer's preference about channel structures also without impacts of product line design ( $RD \succ D \succ RR \succ R$ ). When consumers in terminal market are prefer to intermediate retailer's indirect channel, product line design will impact on manufacturer's preference about channel structures, and the sequence of relative premium quality product line is given by  $RR \succ RD \succ R \succ D$ , while the sequence of relative low quality product line is  $RD \succ RR \succ D \succ R$ .

This dissertation further point out branded manufacturers will adopt uniform pricing for their premium quality products in the process of marketing, when they only consider their own premium quality product line. Branded manufacturers at most obtain zero profit from multi-channel mode RR and single indirect channel mode R according to any one utility function, thus manufacturers only need to make a decision between hybrid mode RD and single direct channel mode D.

**Keywords:** *Product Line Design; Channel Structure; Utility Function; Manufacturer's Behavioral Preference; Game Theory*

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