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Product Line Design for a Distribution Channel

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Abstract

When designing a product line, a manufacturer is often aware that it does not control the ultimate targeting of the products in the line to the different consumer segments. While the manufacturers can attempt to influence the target customers through communications in appropriate media, product design, and the choice of channels of distribution, the ultimate targeting is made by a retailer, which might only care about its own interests, and is fully in control of interactions with customers, including how the product is sold and displayed. This occurrence is widespread in numerous markets, for example, frequently purchased consumer products, home appliances, personal computers, automobiles, etc. The audience for this paper includes practitioners and academics who want to better understand how a manufacturer selling through an intermediary can better induce this intermediary to have a targeting strategy consistent with the manufacturer's intentions and be willing to carry the full product line.

The paper attempts to find what are the main issues a manufacturer selling through a distribution channel has to worry about when designing the product line. The problem of the product line design for a distribution channel is modeled with the manufacturer, the retailer or several competing retailers, and the consumers. In this way all the three levels of the distribution system are included.

The model can be summarized as follows. The manufacturer decides how many products to have in the line and the physical characteristics of each product, quality. Each product may or may not be targeted at a different market segment. The manufacturer decides as well how many market segments to try to target and the prices to charge the retailer for each type of product. Given the product line being offered by the manufacturer, the retailer (or competing retailers) decides which products to carry, the market segments that are going to be targeted, which product to target to each segment, and the prices being charged the consumers for each product.

The consumer market is composed of different market segments that value quality differently: Some market segments are willing to pay more for quality than other market segments. The paper presents the results for two market segments, but a greater number of market segments can also be accounted for. We characterize the equilibrium targeting strategies of the manufacturer and retailer (or competing retailers) in terms of number of products in the line, the physical characteristics of each product, the prices charged by the manufacturer for each product, the consumer prices charged by the retailer for each product, and the product bought by each market segment. We compare the results with the coordinated channel outcome, where the manufacturer and the retailer work together to maximize the overall channel profits. The results are related to the other coordination problems previously studied in the literature (for example, the standard "double marginalization" effect of higher prices reducing demand) in the sense that the retailer makes decisions caring only about its own profits and not the overall channel profits.

The paper shows that, if possible, the best strategy for the manufacturer is to increase the differences in the products being supplied (in comparison to the direct selling/coordinated channel case). If the manufacturer is not able to increase these differences, it then elects to price the product line such that some of the consumer segments end up not being served. The intuition for this result is that the manufacturer, by increasing the differences among the different products, is still making major profits on the high end segments, while getting some positive profits from the low end segments and guaranteeing that the retailer actually targets the different products to the consumer segments intended by the manufacturer. Were the manufacturer not to increase the differences among the different products being offered, the retailer would only target the higher end consumer segments, because also targeting the lower end segments would involve losing too many rents on the higher end segments. Another way of seeing the problem is that the channel pricing distortions increase the cannibalization forces across the product line. The manufacturer tries to compensate for this by increasing the product differentiation across the line. If increasing the differences among the different products being offered is not possible, the manufacturer then drops the low end consumer segments and concentrates on the high end of the market (which is more profitable). The unit margins of both the retailer and manufacturer are also shown to be increasing with the quality level of the product.
(*Product Line*; *Distribution Channels*; *Product Policy*; *Pricing*; *Segmentation*)

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