

The Pricing Strategy of the Manufacturer with Dual Channel under Multiple Competitions

Xueling Li¹ and Maozhu Jin^{2*}

¹ *Economics and Management Department, Sichuan Normal University Chengdu school, Chengdu, Sichuan, China*

^{2*} *Business School, Sichuan University, Chengdu, Sichuan, China*

¹ *381816383@qq.com, ^{2*}jinmaozhu@scu.edu.cn*

**corresponding author e-mail: jinmaozhu@scu.edu.cn*

Abstract

In real life, the manufacturers typically conduct differential pricing for the same product in different regions. The dual-channel strategy not only generates the conflict between network sale channel and traditional channel, but also conflict the competition between traditional channels in different regions. We suppose that the traditional retail channels, manufacturers implementing the difference pricing strategy can make more profits. The literature mainly studies the impact of the network channels on manufacturers pricing strategy, and discusses the four kinds of pricing strategy in dual channel under the background of the manufacturers. Finally, through the analyses of numerical simulation of the parameters on the different pricing strategies, the related conclusions are given.

Keywords: *pricing decision; dual-channel; E-commerce*

1. Introduction

In traditional retail channels, manufacturers sell the same products in different prices of different regions for obtaining greater profits as the situation in diverse regions and countries is different. In the traditional sales channels, consumers are very difficult to know the sales price in the same product and rarely choose different places to buy this product, but to buy the products from the local retailers, due to segmentation and information asymmetry of the geographical position. With the rise of the network of sales channels, there have been more and more consumer choice the way of shopping from the Internet channel. When manufacturers introduce the network of sales channels, the sales price of the same product in the network is the same for different regions of the consumers, while consumers buy products. They will carry on the contrast to the net sales price and local sales price, so the introduction of the network marketing channel will not only cause conflicts between network sale channel and traditional channel, but also cause indirect competition between traditional sales channels, and will also pose a challenge to the manufacturers implement the regional differential pricing strategy .

In order to avoid channel conflict, some scholars have begun to study the cooperation between the supply chain. Qi X and Xiao T et al. study the quantity discount contract [1,2], Ingene C and Kaya O research the two-part tariff contract [3,4], the revenue-sharing contract are studied by Cachon GP and Hua Z [5,6], Pasternack BA and Ding D et al. consider the buyback contract [7,8]. There are also many scholars began to analysis into the research of

network marketing channels influence on the manufacturer's pricing strategy [10-17,18-24]. And many scholars research into the analysis of channel sales network influence on the manufacturer's pricing strategy in recent years,. Cattani et al. provide more comprehensive commentary on modeling literature coordination in traditional sales channels and network marketing channel [9]. Swaminathan and Tayur pointed out that in the background of e-commerce multi-channel management is an important area by comparing the traditional supply chain research [11]. McGuire and Staelin alternative products of its impact on sales channels through the comparison of the two productions of alternative products [12]. Granot and Sosic extended the above model, and study the alliance which has different retailers forms and substitute products to sell, alliance structure and retailers' profit according to the product substitutability and compatibility [13]. Choi studied the price competition between the manufacturer and the two channels and the effect of structure and profit of channel [14]. Chiang et al. proved that the channel sales network can increase the manufacturer's profit and improve the manufacturer and the retailer bargaining power on the basement of manufacturers in the traditional channel [15]. Tsay and Agrawal assume that consumers demand depends on price and sales effort. Their study found that the increase of direct sales channels will not damage the traditional retailers and manufacturers can adjust the pricing to make increase the profit of manufacturers and retailers [16]. Chen et al. points out the optimal dual channel strategy depends on the background of channel such as the management of network channel cost, the retailer's convenience, product features and other factors when manufacturers and retailers compete by service through traditional channels and Internet sales channels [17]. Bernstein et al. puts forward three kinds of competition pattern and points out that network and retail channels coexist is stable equilibrium solution on the sale of highly substitutable products retailer at the same time [19]. Kurata et al. proposed an international brand manufacturers competition between the network and traditional channels and local brands [20]. Xingzheng assumed that the manufacturer get retailers forecast information, and the retailer failed to get manufacturers direct sales channel prediction information [21]. Guo Yajun and Zhao Liqiang studied the mixed double channel strategy and channel conflict problems under the electronic commerce environment [22]. Pu Xu Jin et al. research the effect of direct sales model on the existence of strong retail channels how to direct model manufacturers have the effect of retail channels [23]. Cattani K D and Huang W et al. gives similar results that getting the aiming products in the lowest prices is the most important [9, 24 -26] .So manufacturers how to determine its products pricing strategy become more and more important in the both traditional sales channels and the network channels, It is related to whether a company can survive better in the new era of Internet Environment.

In this paper, we consider the situation of great differences in the domestic. On account of the situation of the differences between different regions in domestic market and the condition of manufacturers taking foreignization pricing strategy in difference regions, we first constructed the traditional manufacturer pricing model, then proposed and proved that the pricing differences can get more profit, which is pointed out in the traditional market makers manufacturers can implement the differential pricing to gain more profit through the different regions. Secondly, four kinds of pricing strategy of manufacturer are given, namely, retail prices remain unchanged, unified pricing strategy, different pricing strategy between channels, overall profit maximization. The pricing strategy is discussed and the different pricing strategies, the manufacturer profits, traditional channels and Internet channels sales prices are given respectively in this paper. We experiment the pricing strategy of the theoretical analysis and numerical analysis, and the various strategies are analyzed and corresponding conclusions are given.

2. Model Description and Hypothesis

We suppose a trans-regional-sales manufacturers sell the same product at the same time, in order to gain more profits, the price discrimination strategy is taken to different customer, i.e. different regions use different pricing. Due to the rapid development of electronic commerce, customers can choose their own needs through the network channels and traditional channels in the same area when manufacturers introduced network channels.

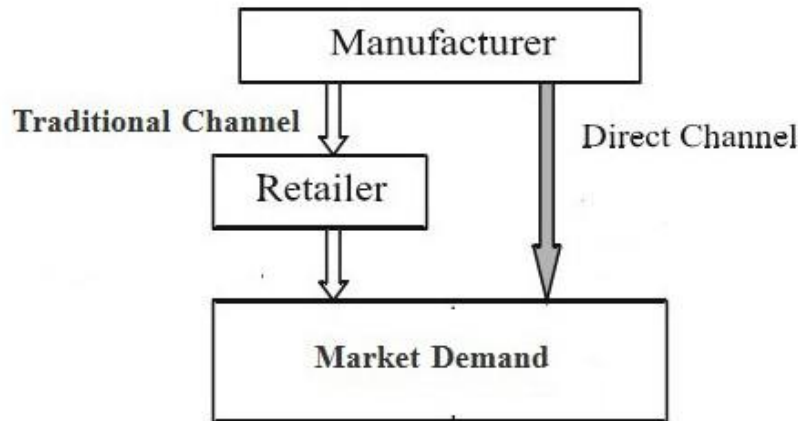


Figure 1. The Dual Channel

The basic assumptions are as follows:

Hypothesis 1: When manufacturers do not introduce the network of sales channels, manufacturers sell the same products in two different areas. For gaining more profits, manufacturers implement the difference pricing strategy.

Hypothesis 2: Assuming that the manufacturers have introduced the network of sales channels, consumers can choose to purchase products from a local retailer or purchase through the network channels. As more and more manufacturers make sale service outsourcing, and implement the national security, so we assume the same utility consumers can be obtained from two sales channels to buy product.

Hypothesis 3: If manufacturers on the market 1 and market 2 pricing are respectively p_1 and p_2 . After the introduction of network sale channel on the two market, the price of the same product in network is p_{int} , the total cost of traditional channel is c_r , the total cost of the network channel for both the difference between the cost of c_{int} for $\Delta = c_r - c_{int}$.

Hypothesis 4: Assuming that the demand function is $D_i(p_i) = S_i(1 - \beta_i p_i)$, $i = 1, 2$, S_i said the product demand in market i , β_i said the price elasticity of factor market i . When manufacturers in the market i with the introduction of network sales, demand function

network channel and traditional channel road respectively for $q_i = u S_i (1 - \frac{\beta_i p_i}{1 - \theta} + \frac{\beta_i \theta p_{int}}{1 - \theta})$

$q_{int}^i = (1 - u) S_i (1 - \frac{\beta_i p_{int}}{1 - \theta} + \frac{\beta_i \theta p_i}{1 - \theta})$, where q_i denotes the i market of traditional channel

sales, q_{int}^i said the i sales market network channel products, $0 \leq u \leq 1, 0 \leq \theta \leq 1, i = 1, 2$. u said the initial market share of traditional channels, that is willing to buy products through the traditional channel, instead of $1 - u$ indicates the initial network market share. The θ said the

channel price sensitivity parameters. It performance the alternative of this type products between two channels, which is mainly related attributes such as the will consumers buy mobile phone through the network channels is higher than through the network channels to buy a car. u said the absolute difference demand and the θ said reflected by the cross elasticity of channel substitutability. They show the choice of consumers in the characteristics of shopping channel through the combination of u and the θ . For example they can get the products on the spot through traditional channels, and may need to wait for the network to buy these products through the network channels, but the network channels may save shopping time and don't run a lot of road, and the effects of different channels between price. The above hypothesis can be showed in Table 1.

Table 1. Comparison of E-Commerce Supply Chain and Traditional Supply Chain

	traditional supply chain		e-commerce supply chain
Price	Marker 1 : p_1	Marker 2: p_2	p_{int}
Cost	c_r		c_{int}
Demand function	$q_i = uS_i(1 - \frac{\beta_i p_i}{1 - \theta} + \frac{\beta_i \theta p_{int}}{1 - \theta})$		$q_{int}^i = (1 - u)S_i(1 - \frac{\beta_i p_{int}}{1 - \theta} + \frac{\beta_i \theta p_i}{1 - \theta})$
The initial share	u		$1 - u$

2. Model and Analysis

2.1. Fundamental Model

When the manufacturer has not introduced the network marketing, the traditional channel price two market pricing, the market demand function for i is:

$$D_i(p_i) = S_i(1 - \beta_i p_i), i = 1, 2 \quad (1)$$

The profits of manufacturers are:

$$Max_{p_i} \Pi_i = \sum_{i=1}^2 S_i(1 - \beta_i p_i)(p_i - c_i), i = 1, 2 \quad (2)$$

Assuming that the manufacturer has two kinds of pricing strategy, one is a unified pricing another is differentiated pricing.

A manufacturer of uniform pricing is p , the optimal pricing and profit to manufacturer are:

$$p = \frac{S_1 + \beta_1 S_1 c_r + S_2 + \beta_2 S_2 c_r}{2(\beta_1 S_1 + \beta_2 S_2)}$$

$$\pi_m = \frac{[S_1(1 - \beta_1 c_r) + S_2(1 - \beta_2 c_r)]^2}{4(\beta_1 S_1 + \beta_2 S_2)} \quad (3)$$

Assuming that the manufacturer of the difference between the two market pricing are respectively p_1, p_2 , optimal pricing and profit to manufacturer is:

$$p_i = \frac{1 + \beta_i c_r}{2\beta_i}; \pi_m' = \sum_{i=1}^2 S_i \frac{(1 - \beta_i c_r)^2}{4\beta_i}, i = 1, 2 \quad (4)$$

Condition 1: Sales volume is non-negative, so the establishment of function should meet $\beta_i c_r \leq 1, i = 1, 2$

Condition 2: Because the demand function is decline, function established conditions should meet

$$\frac{\theta}{1+\theta} \leq u \leq \frac{1}{1+\theta}$$

Theorem 1: The profit total of manufacturers implementing the differential pricing strategy for different market is higher than that of uniform pricing and uniform pricing strategy, and the price in implementing the differential pricing strategy is higher than the lowest price in difference pricing strategy, lower than the highest price in difference pricing strategy .That is:

$$\pi_m' \geq \pi_m, \min\{p_i, p_{3-i}\} \leq p \leq \max\{p_i, p_{3-i}\}, i = 1, 2$$

As long as the price elasticity β_i is different in two markets, differentiated pricing for the two markets always can get more profit. In fact, many manufacturers implement differential pricing strategies for different areas because of the different regions and provinces and larger differences in the development. In addition, many Multi-National Corporation also carry out differential pricing strategy in different countries. For example the T Series of ThinkPad in the United States price is far lower than China and Singapore, some consumers in Singapore buy these computers through the site from the United States, even plus shipping and 7% consumption tax ,the total prices is also lower than the Singapore price, as well as in Singapore to buy products enjoy IWS at the same time. Therefore manufacturers must rethink regional differences in current pricing strategy in the condition of network marketing, increasingly developing today.

2.2 Analysis of Four Different Pricing Strategies

Strategy 1: Retail prices remain unchanged

If manufacturers maintain the previous strategy to keep retail prices remain unchanged, while get the maximum profits through the network channels. That is $p_i = \frac{1+\beta_i c_r}{2\beta_i}, i = 1, 2$, we can get the biggest profit function for manufacture:

$$\begin{aligned} Max_{p_{int}} \pi_m = & \sum_{i=1}^2 (p_i - c_r) u S_i \left(1 - \frac{\beta_i p_i}{1-\theta} + \frac{\beta_i \theta p_{int}}{1-\theta}\right) + \\ & \sum_{i=1}^2 (p_{int} - c_{int})(1-u) S_i \times \left(1 - \frac{\beta_i p_i}{1-\theta} + \frac{\beta_i \theta p_{int}}{1-\theta}\right) \end{aligned} \quad (5)$$

Theorem 2: The total profit of manufacturers is a concave function on the network channel price p_{int} .

Let

$$A_i = S_i (-1 + u)(1 + c_{int} \beta_i)$$

$$B_i = S_i (-1 + u)(c_{int} \beta_i - 1)$$

$$C_i = S_i u (c_{int} \beta_i - 1)$$

$$D_i = S_i (c_r \beta_i - 1)$$

Then, we can get:

The optimal pricing policy maker of network channel is

$$p_{int} = \frac{2(1-u) \sum_{i=1}^2 S_i (1 + c_{int} \beta_i) + (1-2u) \sum_{i=1}^2 \theta (c_r \beta_i - 1)}{4(1-u)(S_1 \beta_1 + S_2 \beta_2)} \quad (6)$$

The profit of traditional channel is:

$$\pi_m = \sum_{i=1}^2 (p_i - c_r) \left(\frac{u S_i (1 - c_r \beta_i \beta_{3-i})}{4 \beta_i \beta_{3-i} (-1 + \theta)} \right) \times \left(-1 + c_r \beta_i + 2\theta - \frac{\beta_i \theta \sum_{i=1}^2 (2 A_i + \theta (-1 + 2u) D_i)}{2(-1 + u)(S_i \beta_i + S_{3-i} \beta_{3-i})} \right) \quad (7)$$

The profit of network channel is:

$$\pi_{in} = \frac{(2 \sum_{i=1}^2 B_i + \theta \sum_{i=1}^2 D_i)(2 \sum_{i=1}^2 B_i) - (-1 + 2u) \theta \sum_{i=1}^2 D_i}{16(-1 + u)(-1 + \theta)(S_1 \beta_1 + S_2 \beta_2)} \quad (8)$$

Proposition 1: Manufacturers using strategy 1, the price is higher than the lowest price network channels in traditional channel, lower than the highest price in traditional channel. That is $\min\{p_i, p_{3-i}\} \leq p \leq \max\{p_i, p_{3-i}\}, i = 1, 2$

Strategy 2: All channels with uniform price

In order to reduce channel conflict between channels, assumes that the manufacturer for all channels take the same price. The profit function to manufacturer is:

$$Max_{p_{int}} \pi_m = \sum_{i=1}^2 (p_i - c_r) u S_i \left(1 - \frac{\beta_i p_i}{1 - \theta} + \frac{\beta_i \theta p_{int}}{1 - \theta}\right) + \sum_{i=1}^2 (p_{int} - c_{int}) (1 - u) S_i \left(1 - \frac{\beta_i p_i}{1 - \theta} + \frac{\beta_i \theta p_{int}}{1 - \theta}\right) \quad (9)$$

Theorem 3: The total profit of manufacturers is a concave function on $p_{int} = p_1 = p_2$

The optimal pricing and profit for manufacturers is:

$$p = \frac{1}{2} (c_{int} - u c_{int} + u c_r + \frac{S_1 + S_2}{\beta_1 S_1 + \beta_2 S_2})$$

$$\pi = \frac{\sum_{i=1}^2 [S_i + \beta_i S_i (-c_{int} + u c_{int} - u c_r)]^2}{4 \sum_{i=1}^2 \beta_i S_i}, i = 1, 2 \quad (10)$$

Strategy 3: The strategy of overall profit maximizing in channels between the differential pricing

Assuming that the manufacturer maximizing the overall profit, the profit function of manufacturer is:

$$Max_{p_{int}} \pi_m = \sum_{i=1}^2 (p_i - c_r) u S_i \left(1 - \frac{\beta_i p_i}{1 - \theta} + \frac{\beta_i \theta p_{int}}{1 - \theta}\right) + \sum_{i=1}^2 (p_{int} - c_{int}) (1 - u) S_i \times \left(1 - \frac{\beta_i p_{int}}{1 - \theta} + \frac{\beta_i \theta p}{1 - \theta}\right) \quad (11)$$

$i = 1, 2$

Theorem 4: When $4u - 4u^2 - \theta^2 > 0$, total profit of manufacturers is a concave function on p_{int} and p

The manufacturer's optimal pricing for the traditional channel is:

$$p = \frac{2u \sum_{i=1}^2 A_i + (-1 + 2u) \theta \sum_{i=1}^2 B_i + \theta \sum_{i=1}^2 S_i (1 - u + u c_r \beta_i)}{[4(-1 + u)u + \theta^2](S_1 \beta_1 + S_2 \beta_2)} \quad (12)$$

The manufacturer's optimal pricing for network channel is:

$$p_{int} = \{2u \sum_{i=1}^2 A_i + u\theta \sum_{i=1}^2 (\beta_i + C_i) + \theta^2 \sum_{i=1}^2 S_i \times [-u + (-1+u)c_{int}\beta_i]\} / [4(-1+u)u + \theta^2](S_1\beta_1 + S_2\beta_2) \quad (13)$$

The maximum profit for the manufacturer is:

$$\pi = \frac{(S_1\beta_1 + S_2\beta_2)((S_1C_1 + S_2C_2)(1 - \theta^2))}{(S_1\beta_1 + S_2\beta_2)[4(-1+u)u + \theta^2]} + \frac{\Delta(-1+u)u(1+\theta) \sum_{i=1}^2 S_i(2C_i + 2\Delta u\beta_i + \theta - c\beta_i\theta)}{4(-1+u)u + \theta^2} \quad (14)$$

Proposition 2: When the cost of network sale is lower than traditional sales cost ($c_{int} \leq c_r$), and satisfies the $4u - u^2 - \theta^2 > 0$ and $u < \frac{1}{2}$, the price of manufacturer using strategy 3 channel was lower than the price of traditional channel, namely $p_{int} < p$

Strategy 4: overall profit maximizing strategy

Assuming that the manufacturer to maximize the overall profit, the profit function to manufacturer is:

$$\begin{aligned} Max_{p_i, p_{int}} \pi_m &= \sum_{i=1}^2 (p_i - c_r)uS_i \left(1 - \frac{\beta_i p_i}{1-\theta} + \frac{\beta_i \theta p_{int}}{1-\theta}\right) + \\ &\sum_{i=1}^2 (p_{int} - c_{int})(1-u)S_i \times \left(1 - \frac{\beta_i p_{int}}{1-\theta} + \frac{\beta_i \theta p_i}{1-\theta}\right) \end{aligned} \quad (15)$$

$i = 1, 2$

Theorem 5: when $4u - 4u^2 - \theta^2 > 0$, total profit of manufacturers is a concave function of p_{int} , p_1 and p_2

The manufacturer's optimal pricing for the traditional channel is:

$$\begin{aligned} p_i &= \frac{1}{2\beta_i(S_i\beta_i + S_{3-i}\beta_{3-i})[4(-1+u)u + \theta^2]} \times \\ &\{4uA_i(S_i\beta_i + S_{3-i}\beta_{3-i}) + 2S_i\beta_i(1+C_i) + \\ &2\theta(-1+u)[(S_i\beta_i + S_{3-i}\beta_{3-i})(B_i + C_i) + \\ &S_{3-i}(\beta_i - \beta_{3-i})] + S_{3-i}(\beta_i + \beta_{3-i} + \\ &2\beta_{3-i}C_{3-i})\theta^2 + S_{3-i}(\beta_i - \beta_{3-i})\theta^3\} + \\ &\frac{\Delta u(-2 + 2u + \theta^2)}{4(-1+u)u + \theta^2}, i = 1, 2 \end{aligned} \quad (16)$$

The manufacturer's optimal pricing for network channel is:

$$\begin{aligned} p_{int} &= \frac{1}{(S_1\beta_1 + S_2\beta_2)[4(-1+u)u + \theta^2]} \times \\ &2u(S_1A_1 + S_2A_2) + u\theta[S_1(\beta_1 + C_1) + \\ &S_2(\beta_2 + C_2) + \theta^2[(S_1\beta_1 + S_2\beta_2) - (S_1 + S_2) + \\ &\frac{\Delta u(-2 + 2u + \theta^2)}{4(-1+u)u + \theta^2}] \end{aligned} \quad (17)$$

The maximum profit of manufacturers is:

$$\pi = \frac{1 - \theta}{4\beta_1\beta_2(S_1\beta_2 + S_2\beta_1)[4(-1+u)u + \theta^2]} \times$$

$$\{4\beta_1\beta_2(1+\theta)B_1C_1(S_1^2 + S_2^2) + 8\beta_1\beta_2B_1C_2 +$$

$$(\beta_1 - \beta_2)^2\theta^2 - S_1S_2[-4(-1+u)u^2(\beta_1 - \beta_2)^2 +$$

$$2\beta_1\beta_2B_1C_2]\} + \Delta(-1+u)(1+\theta) \times$$

$$\sum_{i=1}^2 S_i(2u C_i + u^2 \Delta\beta_i + \theta C_i) \quad (18)$$

Proposition 3: Profit of strategy 4 is always higher than that of strategy 1, strategy 2 and strategy 3

Proposition 4: When $-2 + 2u + \theta \leq 0, -1 + 2u < 0$, the price of strategy 4 in network sales is lower than that of strategy 1 in network sale.

Proposition 5: When $4u - u^2 - \theta^2 > 0$, The price of manufacturers using strategy 4 in network channel is higher than the lowest price in traditional channel, lower than the highest price in the traditional channel, namely $\min\{p_i, p_{3-i}\} \leq p \leq \max\{p_i, p_{3-i}\}, i = 1, 2$

In fact, models and conclusions in literature [26] can be considered as special cases presented in this article, namely when the parameters of $s_1 = s_2$ and $\beta_1 = \beta_2$. Due to the difference in various regions in the domestic, it is difficult to balance development between the districts in the short term, that is to say, in a fairly long period of time manufacturers still have to face the situation of difference between different regions is still larger. And the difference pricing strategy in different areas is also very difficult to give up for a long time, so manufacturers must not only face the conflict between different channels, but also face the conflict caused by different pricing strategy between different regions.

3. The Example Analysis

Parameters $S_1 = 3000, S_2 = 3000, \beta_2 = 0.0007, c_{int} = 200, c_r = 300$, respectively, research on the effect of different strategies of the θ network channels when network market share is small, i.e. $\mu = 0.7, \beta_1 = 0.00096$ (Figure 2) and $\beta_1 = 0.0007$ (Figure 3). Among them, π_1 represent the profit of the manufacturers implement the differentiation strategy when has not introduced the network sales; π_2 represent the profit of the manufacturers implement unified pricing strategy; π_3 said the profits gained by the manufacturers implement strategy of 1 with the introduction of the network channels; π_4 said the profits gained by the manufacturers implement strategy of 2 with the introduction of the network channels; π_5 said the profits gained by the manufacturers implement strategy of 3 with the introduction of the network channels; π_6 said the profits gained by the manufacturers implement strategy of 4 with the introduction of the network channels

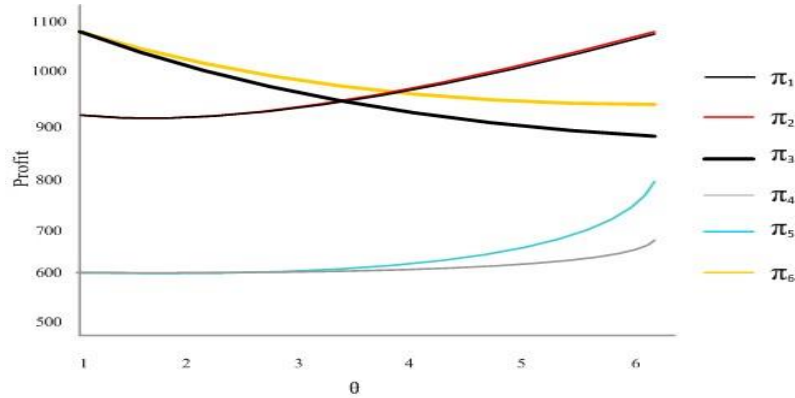


Figure 2. Sensitivity of the Manufacture's Price Strategy to θ , where $\mu = 0.7, \beta_1 = 0.00096$

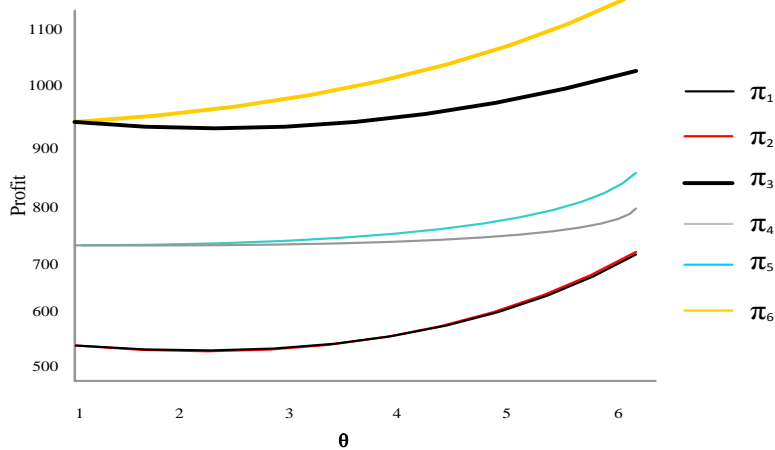


Figure 3. Sensitivity of the Manufacture's Price Strategy to θ , where $\mu = 0.7, \beta_1 = 0.0007$

According to the constraint conditions, this paper selects a series of parameters with simulation analysis was carried out based on the simulation results, and some representative examples are given and analyzed. We assume that the traditional sales channels occupied most of the market share. In the paper, we select two kinds of case studies, namely one is the difference of market price elasticity factor which is small, another is the difference of market price elasticity which is larger. We can see the price elasticity of factor markets in different pricing strategies on manufacturers that have a great impact. When the traditional retail channels accounted for the major share of the market, two market price elasticity differences is larger. The increasing of θ make a small impact on relative profit in different strategies, and when the two market price elasticity difference, the increasing of θ make a larger impact on relative profit in different strategies. We found that when the price elasticity between the two markets is larger, the profits of manufacturers of introduce network channel sales is lower. When the price elasticity between the two markets is not larger, the profits of manufacturers introducing network channel is higher than that of differentiation strategy without the introduction of the network channels. Anyway, when the market price elasticity factor difference is larger, the profits of manufacturers introducing network channel is always higher

than the profits of manufacturers implementing unified pricing policy without the introduction of network channels. Literature [26] think manufacturers with the network channel can bring more profits. In fact, A lot of enterprises implement dual channel marketing strategy in foreign but not in the domestic market. It is one of the most important reasons is because the domestic market price elasticity varies greatly among regions caused.

4. Conclusions

This research considers pricing policies in a dual channel. Because the manufacturer introduce the network sale channel, this channel will have an impact on the strategy of the original difference price .As the emergence of new sales channels, customers will compared the traditional sales channels and the network sales channels , and this will inevitably impact on the pricing strategy of manufacturer. So manufacturers in the pricing strategy must take into account the differences among regions and among channels at the same time. In view of the above problems, this paper do not take into the network channel regional unified pricing for reference, we discuss four kinds of pricing strategy of manufacturer with the introduction of network channels and the differentiation pricing strategy of not introducing the network channel between alienation area. And it is pointed out that when the network channel market share is low, strategies 1 and 4 profit is close, so manufacturers can adopt the traditional channel pricing strategy unchanged and the profit they get is close to the maximum profit.

When the market price elasticity factor difference is larger, four pricing strategies into the network channel's profits are lower than the implementation of differential pricing. When the market price elasticity factor difference is larger, manufacturers may be reluctant to introduce the network channels. We noticed that some manufactures did not introduce network channel, one of the reasons is that, the profits of manufacturers may not only lower than that not introducing the network channel, but also cause indirect conflict between Internet and traditional sales channels and the conflict between traditional channels of different regions. At the same time, the market is quite different among areas .In the future research, we can consider the time factor for the effect of double channel sales, and can consider the game between the traditional sales channels and sales channels.

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Authors



Xueling Li. She received her machinery and electronics undergraduate (2000) and M.Sc in Computer Applications (2006) from the University. Now she is full-time lecturer of e-commerce professional at Economics and Management Department, University. Since 2010, she is the director of the Department of e-commerce. Her current research interests include various aspects of e-commerce professionals, especially network marketing, online business, online operations, marketing, enterprise site planning analysis.



Maozhu Jin. He received his M.Sc. Electronics Science and Technology (2005) and PhD in management science (2008) from University of Huazhong Science and Technology, Wuhan, China. Now he is assistant professor of informatics at business school, Sichuan University. His current research interests include multi-objective optimization, game theory, service science and supply chain management.

