

## Coordination of Supply Chain in the Choice of Strategic Consumer Behavior

Min Duan<sup>1,2</sup>

<sup>1</sup>*School of Traffic and Transportation, Xuchang University, Xuchang 461000, China*

<sup>2</sup>*School of Transportation Engineering, Beijing Jiaotong University, Beijing 100044, China*

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**Abstract:** The paper introduces the consumer choice behavior requirements model based on the analysis of consumer behavior and manufacturers marketing strategy for distinguishing the types of consumers. At the same time, it gives the analysis strategy of the consumer behavior for manufacturers' pricing, quality, and the influence of the inventory decision, and it is further to expand consumer behavior selection decisions to supply chain management. The research uses consumer behavior selection to verify the result of the supply chain on the wholesale price of a commodity, repurchase, profit sharing, quantity discounts, sales is harmonious, which is also reflect the entire supply chain performance better information sharing and coordination effectiveness of contract.

**Keywords:** Consumer behavior, supply chain, management achievement

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### I. INTRODUCTION

In the face of the choice strategies of consumers, suppliers must think about how to formulate better pricing and inventory strategy than ever. But which strategy is more appropriate, the dynamic pricing or the static pricing? The markets have the different consumer behaviors under the condition of price exogenous and endogenous. It needs to compare with the three strategies of the less limited two-stage dynamic pricing, limited two-stage dynamic pricing and everyday parity. At the same time, the proportion of consumer behavior is influenced by the choice of suppliers, and provides reference for the best marketing decisions of suppliers. The contract of supply chain is also a way to coordinate the decision behavior of the dispersed supply chain members and keep them consistent with the optimal goals of the system. It is the provision of appropriate information and incentives through ensuring that buyers and sellers to coordinate and optimize. The performance of sales channels relative clauses, these clauses including price, lead time, quantity, quality, rebates, return money, marketing costs, production capacity, and investment, credit and payment terms, as well as after-sales service and other aspects related to the interests of the parties [1].

Consumer behavior choice to the effective contracts of supply chain can not only reduce the total cost of supply chain, reduce inventory levels, enhance the level of information sharing, improve mutual communication between the node enterprises, have a greater competitive advantage to realize the optimal performance for supply chain, but also share

the risks posed by various uncertainties by both parties. These results of consumer behaviors can verify whether the links of commodities in the supply chain can be coordinated by the wholesale price, repurchase, profit sharing, quantity discount, sales repurchase contract and others [2-3].

### II. RESEARCH ON CONSUMER BEHAVIOR CHOICE

#### A. *The Decision-Making Process of the Traditional Consumer Behavior*

The traditional consumer behavior studies only considered the influence of marketing variables on demand, and overlooked some consumers could positively compared the more marketing strategies to choose the right products on the right time to make their own utility maximization, which did not reflect consumer choice decision-making process, as shown in Figure 1.

For the characteristics of different consumer behavior, consumers can be divided into two types consumers of myopic type and strategic type by many researchers. The myopic type consumers don't think about the future price, and they will buy when the current price is below their reservation price. This kind of behavior can allow retailers to make marketing decisions, who don't have to think about the current consumer purchase intention for the future price. While the strategic consumers make current decisions, they consider the changes in future prices. Those will result in a more complex decision for the retailer's current price decisions [4].

The two different characteristics from consumers

of the myopic type and strategic type, the myopic type consumers will leave immediately when the current price is higher than the reservation price, but the strategic type consumers will choose to wait in order to price decline. The myopic type consumers will buy immediately if the current price is lower than consumers' retention price, but the strategic consumers may delay spending in order to buy goods at lower prices. In addition to responding positively to the price changes of the manufacturer, the consumers who respond positively to the underlying economic mechanisms, such as the availability of

commodities, are regarded as strategic consumers. The strategic consumers will anticipate future market conditions (not limited to the price), and choose appropriate buying opportunities after comparing with the current market conditions. The rule of decision of the strategic consumers, they will buy products when the current price of the purchase is greater than the effect of the delay.

By combining these literatures, we can understand the strategic consumers, who can compare the expected utility of the future purchase with the current purchase utility [5-8].

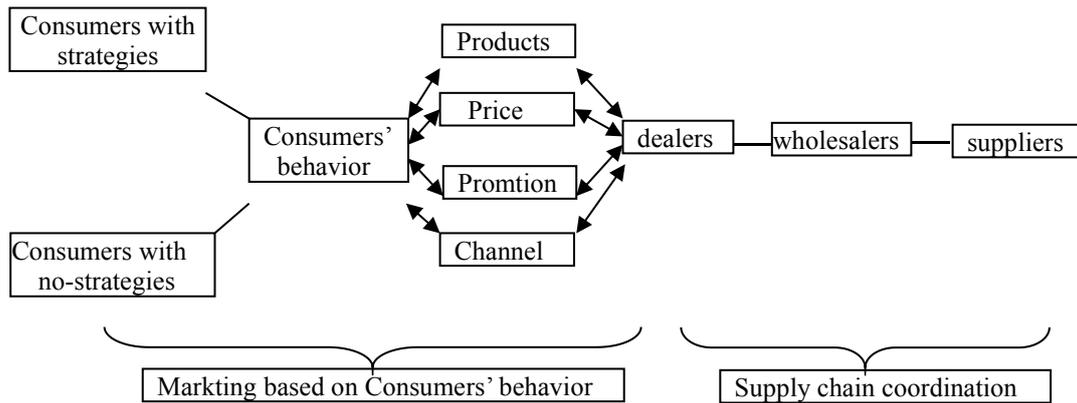


Figure 1. The choice processing of the traditional consumer behavior.

**B. Consumers' Behavior Decision Under Supply Chain Contract**

Relative to the traditional model of consumer behavior choice, consumers' behavior choice can share the inventory risk under the contract of supply chain decisions in advance three different wholesale prices by comparing the push, pull, order discount. This will influence the efficiency of supply chain (the ratio of the maximum profit of supply chain and its). The push-type contract has only a wholesale price, which means that the retailer only orders before the sales season and assumes all risks in the inventory of supply chain. The pull-type contract has only a wholesale price as the same to the push-type contract, and the difference is that the supplier holds the inventory and only orders when the retailer needs it. As a result, the choice of consumer behavior drives suppliers to take on the inventory risk in the supply chain (such as delegating the inventory to suppliers or shipping the delivery) under the supply chain contract. The discount contracts in early orders have two wholesale prices, the discounts price and replenishment price for the sales season. The purchase discount in advance allows allocation of inventory risk, the retailer inventory risk before ordering to the sales season, the production risk borne for the more than the size of the order in advance. The study found that the efficiency of the single wholesale price contract is higher than previous

research, and the previous research may exaggerate the contract value of the coordination (such as the supply chain contract on sharing 100% coordination of repurchase or revenue), because the coordination is often relative to the push contract. In addition, the consumer behavior decision comes into being the effect of early ordering discount contract under the supply chain contract, which can coordinate and distribute profits freely between members in the supply chain.

Retailer discount promotions can make consumers to become more and more clever in a wide range of designs. Many consumers are choosing their favorite goods ahead of time to buy such as discount moment, and tie in with the retailer's promotional activities. The suppliers also want to make certain incentives, although the sales go up, but it is not necessarily increasing the profits. The choice of consumer behavior is not only focuses on the interaction between retailers and consumers under the supply chain contract, but also that involves the problems of the more benefits distributed in the supply chain. The choice of consumer behavior needs to require a combination of the pricing strategy to the enterprise inventory, and extends backward in the contract design of supply chain, which faces the strategic consumers. So that the decentralized decision makes better than the centralized decision under the wholesale price contract in supply chain.

The contract can act as a commitment mechanism to stimulate coordination in supply chain, for some contracts can distribute profit freely between members of the supply chain as a result of the behavior of the strategic consumers [9].

In this paper, the study the firms should be how to develop the marketing and operational strategy in order to realize the profit maximization when consumers make positive response to the retailer's promotional strategy, rationally choosing the appropriate time to maximize its own utility. When the supply chain becomes the two-level supply chains of retailers and suppliers, the strategic consumers will make the decision to choose the appropriate contract to realize supply chain coordination.

### III. THE CHOICE DECISION MODEL OF CONSUMER BEHAVIOR IN THE SUPPLY CHAIN CONTRACT

#### A. *The Contract of The Retailer's Price and Profits*

The choice decision of the consumer behavior under the supply chain contract also involves the retailer's wholesale price contract, which is the most common supply chain contract. The paper assumes  $C_0$  stands for the cost of producing of the supplier,  $P_2$  stands for the residue product price being sold at the end of the quarter,  $P_0$  stands for the wholesale price. Based on the wholesale price contract, the retailer orders products from the supplier before the start of the season one-time order, which does not allow replenishment, and the redundant products will be handled by retailers at the end of the quarter to highlight the retailer inventory risk, there is also referred to as the retailer managed inventory wholesale price contract.

When the supply chain becomes the two-level supply chains of retailers and suppliers, suppliers in the centralized supply chain can supply the product quantity is  $Q_0$ , and the sale price is  $P_1$ , and the future profit of the retailer's is  $I_1$ .

$$I_1(1, 0) = (1 - P_2) ( \wedge 0) - (P_0 - P_2) 0 \quad (1)$$

#### B. *The Revenue Model of Supplier Managing Inventory*

The choice of consumers' behavior can be unified operation based on the strategic considerations under the contract of supply chain decisions of the project positioning, market strategy, management mode by the operators, such as sharing business sales revenue by renting store to a specific business. If a department store is looked as a retailer, the specific business looked as a supplier, the retailer will be not responsible for the specific marketing strategy, who only enjoys the supplier's profit commission. This kind of sales mode, the supplier will bear all inventory risk, formulate pricing strategies. With the

development of Electronic Commerce, this model is being also from offline to online, E-commerce sites provide a unified sales platform, which must have access to suppliers by using this platform to sell their products. In the mode of supplier managing inventory, the paper studies the impact of revenue sharing on the profit of each subject in the supply chain when the suppliers face the strategic consumers. The suppliers will directly face the consumers, and will be responsible for pricing and supply decisions.

According to the principle of maximizing profit, the profit of suppliers can be measured  $I_2$ .

$$I_2(1, 0) = (1 - k)(1 - P_2) ( \wedge 0) - [0 - (1 - k) P_2] 0 \quad (2)$$

$K$  stands for the retailers sharing revenue with suppliers, which determined by the bargaining power between retailers and suppliers. When the retailer shares the lower profit ratio,  $K$  reflects the dominant supplier, whereas shows that retailers share the higher profit ratio.

The paper assumes the price of the products remains the same as constant price, the revenue sharing contract under centralized supply chain contracts can be implemented. At the same time, when the retailer faces the strategic consumers, and one side of retailer and supplier in the negotiation holds the absolute advantage, the position will realize that the supply chain profit cannot be optimal. In a word, when the retailer and supplier in the negotiation have the relative balance of bargaining power, the profit distribution in this supply chain will realize the optimal profit with the beginning commitment [10-11].

### IV. CONCLUSION

Comparing with the traditional choice model of the consumers' behavior, the choice decision of the consumer behavior under the supply chain contract is combined into supply chain management and contract management. Analysis of angle from the perspective of consumer choice behavior, this paper considers the overall supply chain performance and the main body discusses profit distribution in the decentralized supply chain: consumers keep more patience, and suppliers will give the lower the price, quantity, the more appropriate the less profit. This suggests that the choice behavior of the strategic consumers will greatly influence the manufacturer's profits, and it cannot be ignored the behavior characteristics of the target population in the actual developing marketing and operational strategy. If the suppliers can make consumers believe that the product quantity is limited through the brand, advertising and other marketing strategy, manufacturers will get more profit through high limited strategy. However, the urge of profit

often makes the suppliers go against their promise motive. When facing the different consumers, the profit under the centralized supply chain is looked as benchmarking with the number of commitments, and the two contracts can achieve the profit volume with their commitment by the wholesale price for retailers managing inventory contract and the revenue sharing contract of suppliers managing inventory under the supply chain. This is more helpful to improve the efficiency of the supply chain as a whole.

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