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Competition in the Multi-Channel Supply Chain with a Self-Logistics-type E-Platform

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ABSTRACT

Self-logistics-type e-platforms have enjoyed a rapid growth. In sales, some of them only serve as a service provider, matching buyers with sellers. But some of them have become a seller, selling directly to the customer. In logistics, some of them do not open the self-logistics to the third-party sellers, but some of them do open. As a result, a new form of channel conflict emerged. Therefore, the authors consider a self-logistics-type e-platform, who can sell directly to consumers; and a single retailer, who sells through the e-platform without self-logistics, but who may choose to contract with e-platform to deliver its products through the self-logistics. Thus, key questions for the e-platform are whether to sell directly to the customer; if they sell, the decision is whether to deliver the products through self-logistics and whether to open the self-logistics. To solve these questions, the optimal decisions of the retailer and self-logistics-type e-platforms and the system equilibrium results are analyzed under different situations. Finally, the logic tree to get the overall equilibrium is obtained.

KEYWORDS

Channel Conflict, Logistics Strategy, Online Shopping Psychological Cost, Sales Strategy, Self-Logistics-Type E-Commerce Platform

INTRODUCTION AND MOTIVATION

More and more e-commerce platforms have realized the importance of logistics. In addition, some of them have built the logistic system managed by themselves, which can provide consumers with faster and higher-quality logistics services, (the authors call such kind logistics to self-logistics). For example, JD (Jing Dong) Mall, a famous e-platform in China, started to construct self-logistics in 2007. So far, Jing Dong Mall has established eight warehouse centers and nearly 500 large warehouses in China and carried out "211 logistic service" (i.e., the spot orders submitted before 11 a.m. will be delivered on the same day; the spot orders submitted between 11 a.m. and 11 p.m. will be delivered on the next day). Through which, JD Mall always maintains a high growth rate; in 2017, the Gross Merchandise Volume (GMV) of JD Mall reached 1 trillion and 300 billion yuan, which soared by nearly 50% compared with last year; and JD Mall's active users have reached 292 million 500 thousand, which soared by nearly 29.1% compared with last year.

In sales, these e-platforms have a critical feature. When they provide services for the retailer, they are possible to compete with the retailer by selling the homogeneous products (the authors call such kind products to competing products). These e-platforms serve as "two-sided platform", in which e-platforms provide the service of matching buyers with sellers, whereas control of the good is left to the retailer (Hagiu, 2007). Of course, they are also in the business of selling products themselves,

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for example, Amazon, JD Mall etc. also play the traditional "merchant" role, in which they buy goods from suppliers and resell them to consumers (Hagiu, 2007). In logistics, these e-platforms did not open the self-logistics to the retailer in previous years. Now, some of them have opened the self-logistics to the retailer, such as those operated by Amazon, JD Mall.

As a result, considering the control and logistic factor of the products, there exists four potential channels of distribution (as shown in Figure 1). Different channels may bring the customer different purchase cost, different purchase cost will affect customer delivered value[1] and influence the costumers' choice of the competing products. Therefore, these four channels may be in direct competition with one another. In the process of e-commerce transactions, the customer's purchase cost mainly includes two parts: monetary cost and non-monetary cost. Monetary cost is the price the customer needs to pay. In reality, the monetary cost of the competing products generally varies with channels of distribution. For example, when shopping online, the authors always find that the prices of the products from the e-platform and the retailer are different. Non-monetary cost is psychological cost, which means the time, physical and mental effort the customer spends in the process of purchasing the products (Liang and Huang, 1998). In the prior research on e-commerce, the scholars often overlooked the psychological cost. Not the same as shopping offline, when shopping online, the consumers cannot look at the real thing and products can only be received through logistics services, so consumer online shopping psychological cost emerges, which mainly includes the risk cost (it mainly comes from worrying about buying inferior products) and the waiting cost for ordered products. Since customer's psychological cost is an important factor to affect the customer delivered value of each channel, the customer delivered value will affect the costumer's choice and potential channels' demands in the process of e-commerce transactions. Therefore, online shopping psychological cost is an un-neglecting factor in the e-commerce transaction. In addition, different sellers and logistics will bring the customer different online shopping psychological cost. For example, the psychological cost caused by the higher-goodwill enterprise is generally lower than that caused by the lower-goodwill enterprise; that caused by higher-quality logistics is generally lower than that caused by lower-quality logistics. As a result, this creates a new form of channel conflict. This potential conflict and the Self-logistics-type e-platform's optimal related decision of sales model and logistic model are the focus of this article.

To analyze the problem, the authors consider an e-platform and a single retailer. The e-platform, such as JD Mall, has built self-logistics and can become a seller, selling their products directly to consumers, which is called S-platform (short for self-logistics-type e-platform) hereafter. The retailer currently sells products through the e-commerce platform without self-logistics, which is called O-platform (short for outsourcing-logistics-type e-platform) hereafter, but who may choose to contract with S-platform to sell its products through the self-logistics. Selling the products through the self-logistics shortens the logistics time, improves the quality of logistics, and strengthens the

Figure 1. The potential channels

		Controller	
		E-commerce platform	Retailer
Logistic	Self-logistics	Channel E Platform-products and self-logistics	Channel R Retailer-products and self-logistics
	Outsourcing-logistics	Channel e Platform-products and outsourcing -logistics	Channel r Retailer-products and outsourcing -logistics

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