

# Referral service and customer incentive in online retail supply Chain

Y. G. Chen<sup>\*1</sup>, W. Y. Zhang<sup>2</sup>, S. Q. Yang<sup>3</sup>, Z. J. Wang<sup>4</sup> and S. F. Chen<sup>5</sup>

<sup>1,2,3,4</sup> School of Information

Zhejiang University of Finance and Economics  
Hangzhou, China

\*chenyg@zufe.edu.cn

<sup>5</sup> School of Economics and Management  
Zhejiang Normal University  
Jinhua, China

## ABSTRACT

This paper studies an online retail supply chain that includes one referral infomediary and one retailer, in which the infomediary provides demand referral service to retailers and incentive rebates to customers. A linear dual-channel demand with the effect of customer incentive and horizontal service cooperation model was established, and then the optimal policies of infomediary and retailers in centralized and decentralized supply chain were analyzed. Moreover, a horizontal cooperation contract based on customer incentive cost as well as referral service price was developed to coordinate the supply chain. The results revealed that the contract contributed to profit optimization of online retail supply chain and effective win-win cooperation. Finally, we analyze the impact of rebate sensitivity and market share on these optimal policies and illustrate the results by some numerical examples.

Keywords: online retail supply chain, infomediary, customer incentive, demand referral, contract coordination.

## 1. Introduction

The rapid development of Information technology and Internet presents the retailers with the opportunities for expansion to new online segments. According to the recent report of China Internet Network Information Center (CNNIC), the number of online shopping users reached 242 million and utilization ratio of online shopping rose to 42.9% by the end of December 2012[1]. The increase of users' purchase power and the combination of online consumption habit and the forms of mobile and social online shopping promote the growth of online retail market.

The Internet market structure is in a rapid optimization stage while the online shopping users rapidly increase in number. Firms are increasingly embracing integrated Internet-based supply chains because such chains are believed to enhance efficiency and competitiveness [2, 3]. The Internet has opened up opportunities for firms to share information and efficiently collaborate their activities with other entities in the supply chain [4].

E-commerce has given rise to a new breed of intermediaries, the so-called information

intermediaries or infomediaries [5, 6]. An infomediary plays an expanded role in brokering prospect information in product categories, such as automobiles, insurance, and real estate, where the purchase decisions that consumers face are complex and frequently require direct interactions with salespeople [7]. The lowering of search costs with the advent of the Internet has changed the shopping way of consumers. With the help of online infomediary, consumers can get the information they need to make more informed choices [8]. For example, Shopping.com collects the consumers' comments and offers online comparison shopping, and is currently one of the fastest growing shopping destinations for a comprehensive set of products. It recommends interested customers to some trusted online stores, such as Ebay.com, Amazon.com and Buy.com.

Several recent studies have elaborated on the referral service, price of segments and other marketing problems. Chen et al. (2002) analyze the effect of referral infomediary on retail markets and examines the contractual arrangements that

they should use in selling their services [9]. The infomediary helps consumers to costlessly get an additional retail price quote before purchase and endows enrolled retailers with a price discrimination mechanism. Viswanathan et al. (2007) investigate the role of online infomediaries in market segmentation and price discrimination in the automotive retailing context based on three online buying service (OBS) pattern [7].

The result shows that consumers who obtain price information pay lower prices (for the same product), whereas consumers who obtain product information pay higher prices. Chen and Yao (2012) study the optimal decisions of infomediary's effort and retailer's order quantity in centralized and decentralized supply chain, and propose a horizontal cooperation contract based on sharing marketing effort cost [10].

Furthermore, the quantity and quality of information about companies, products, brands or services via online media, in the form of scores or comments, becomes the core competitive advantage of infomediary [11-13]. Recent evidence suggests that consumer reviews have become very important for online purchase decisions and product sales [14]. According to real data on firm security prices, Luo (2009) finds that negative WOM (Word of Mouth) of customers has significant direct short- and long-term effects on firm cash flows and stock prices [15].

Cheung and Lee (2012) focus on the factors that drive consumers to spread positive digital WOM in online consumer-opinion platforms and present the positive relationship between the perception of the opportunity to enhance consumers' own reputations and their eWOM (electronic Word of Mouth) intentions [16]. Consumers are considered as co-providers in the online consumption process and intimately involved in the transition from selling the product to selling the experience [17].

In addition to these internal factors, customers incentive plan of infomediary becomes the external induce to encourage customers to write and disseminate their reviews and comments. Some online shopping platforms and virtual communities provides many kinds of customer incentives, such as price discount, coupon, cash rebate et al, to encourage customers to share their shopping

experience and record their comments. But researchers have not yet studied the customer incentive plans provided by infomediary, even though understanding these mechanisms could enhance customers' behavior of reviews dissemination and infomediary ability to recommendation of products and services.

Our primary interests of this research focus on the effect of customer incentive mechanism and the demand referral service cooperation between infomediary and retailer.

The aforesaid literature usually does not explicitly consider the impact of customer incentive on the final online demand, the service cooperation and supply chain coordination. We will characterize supply chain demands, equilibrium prices, and incentive commission paid by infomediary. The coordination mechanisms of the online retail supply chain are also to be investigated.

The rest of the paper is organized as follows. Section 2 outlines the model framework and the necessary assumptions and notations. Section 3 proposes the optimal policies in Stackelberg decentralized supply chain. Service contract of supply chain is discussed in Section 4. And some numerical examples are given in Section 5 and the paper concludes with some remarks in Section 6.

## 2. Model Formulation

In an online retail supply chain, a retailer sells the product through self-owned channel as well as through an infomediary website. The retailer pays the infomediary for the referral service at  $t$  per unit. The infomediary only provides the customers with product and price information and recommends the potential customers to the retailer.

Thus, the retailer orders the products from upstream supplier, sells to his direct customers from self marketing effort and indirect customers from the demand referral (Figure 1). It is reasonable to expect that the infomediary gets the compensation from the retailer for demand referral service. Furthermore a rebate  $r$  will be given to the customers as an incentive to for recording their experiences and comments on the products and services in detail.

Download English Version:

<https://daneshyari.com/en/article/724854>

Download Persian Version:

<https://daneshyari.com/article/724854>

[Daneshyari.com](https://daneshyari.com)