Dynamic Pricing Strategies Between Online and Off-Line Retailers Based on Switching Costs

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ABSTRACT

With the development of e-commerce, online purchasing has made competitions among retailers fiercer than ever. Access on the internet influences traditional purchasing access inevitably. In this paper, the author uses Hotelling model to simulate the dynamic pricing process between online retailers and off-line retailers by the two steps game model. It gives a straightforward demonstration of the dynamic game process and results between the two retailers--online and off-line. Via the solutions of the model, it is revealed that the preference between online purchase and off-line purchase, as well as switching costs, have a direct impact on pricing strategy of retailers. This paper makes a clear and close analysis of the impact, holding that with the existence of long-term profit, competitors will choose to lower the price to win over consumers.

Keywords: Consumer Preference, Hotelling Model, Online Purchasing, Pricing Strategy, Switching Costs

INTRODUCTION

Competitions among enterprises become increasingly fiercer due to the development of the internet. Many websites lower their price to a level below the cost, in order to win over new consumers and promote sales. They believe that the Age of Internet is “client as king”. With its advantage in the amount of users, Tencent, for instance, has become a strong competitor in a brand new field, the field of MicroBlog, of Sina MicroBlog. Some group purchase sites subsidize merchants to make up their loss of the low price in group purchase (some even lower than cost), so as to new consumers. Why strategies such as winning over consumers by pricing lower than cost emerge endlessly? Is it reasonable for enterprises? Why enterprises provide larger favorable price to new consumers than to regular ones?

This paper attempts to touch upon the reasons behind the mentioned phenomenon from the perspective of switching costs. Via the construction of competitive game model,
we bring about pricing discrimination, analyzing whether price balance exists between traditional retailers and those selling through Internet, how pricing discrimination influence pricing strategy in competition process, the influence of switching costs of competitors with different sale access, and the importance of market share to retailers under the influence of switching costs.

1. MODEL ASSUMPTIONS AND RELATIVE CONCEPTS

Most discussions on switching costs in the field of marketing focus on micro-level, taking switching costs as a method to lock customers, preventing the loss of customers and maintaining customer relations. Scholars such as Liyin Jin found out in recent researches that switching costs not only raises the level of consumer satisfaction, but increasing switching costs better maintains consumer relations. It provides more well-rounded perspectives to the analysis of switching costs, as well as attracting more attention to the analysis of switching costs. This paper brings about switching costs among different retailers on the basis of conventional Hotelling model, discussing the differences in pricing strategy that retailers made on new consumers and regular consumers under the condition of dynamic pricing.

We assume that there is one unit long horizontal linearity market with consumers homogeneous distributing on it. Two competing retailers locate on the two ends of this market, relatively a and 1-b, selling homogeneous products. In this model, one retailer sell goods through the internet, the other choose the traditional access (offline). So the distance between the two shops is 1-a-b, a>0, b>0, 1-a-b>0 (see Figure 1).

Different consumers have different preference for online and offline access. Some of them prefer offline shopping. They hold that (1) offline purchase can provide the chance for them to see, feel and touch by themselves; (2) they do not have to wait for merchants to mail them the products; (3) they can avoid the releasing of important personal information, such as those relating to credit card code; (4) many consumers lack the ability to purchase online.

Others prefer shopping online. They argue that (1) it is freer to purchase online due to the unlimited working hours of online shops; (2) it is easier for them to find different products for comparison; (3) it will cut the transporting cost for offline purchase.

2. SOLUTION

The utility functions for consumers buying products online and offline are:

\[
U = \begin{cases} 
V - P - t(x - a) & \text{Online purchase} \\
V - P - t[(1 - b) - x] & \text{Offline purchase} 
\end{cases}
\]

Via (1) we have the location of critical consumers, i.e. the need of the two competitors:

![Figure 1. Hotelling model for online and offline retailers](image-url)