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# The role of warehouse club membership fee in retail competition

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**Abstract**

There are several explanations as to why warehouse clubs charge membership fees and how the fees play a role in the competitive landscape of the retail grocery market. We provide another insight into the nature of the membership fee using a model of price competition between a warehouse club and a supermarket. We show that the warehouse club's membership fee is an optimal competitive reaction to the supermarket's promotional activity. The more frequent the promotion is, the lower is the membership fee. However, the larger the promotion depth is, the higher is the fee. We show that the cherry-picker segment plays a key role behind these results. Our analysis not only provides a justification of warehouse club membership fees by discovering its duality with the cherry-picker segment but also gives managers several guidelines on yearly fee and retail price decisions.


*Keywords:* Retailing; Retail formats; Warehouse club; Price competition

## Introduction

The core of the warehouse club concept is *membership*.[2] As of this writing, all three major warehouse clubs in the U.S. – Costco, Sam's Club, and BJ's – charge members annual membership fees, ranging between $35 and $45. In 2002, 52 percent of the US households shopped at the retail format, and according to a survey, 30 percent of shoppers who have not joined a membership warehouse club cite the annual membership fee as the reason.[3] Taking their high penetration rate into account, warehouse clubs may now be able to dismiss the complaint by getting rid of the fee policy especially since annual fees account for about 2 percent of their average revenue. Besides, as competition heats up, it has become a big issue whether no-fee format will be a better solution. Despite a 20-year history of warehouse club industry in the U.S., rare attempt has been made to explain the true motivation of the membership policy by warehouse clubs.

Why do they charge a membership fee? There seem to be many possible explanations on this industry practice. On the wall of a Costco store in Mountain View, California, the chain itself puts the following statement, trying to explain their membership fee policy:

"Costco's membership fee provides a means of covering part of our operating costs and overheads, thereby reducing our prices on the products we sell. This way, the more members we have, the lower our prices - and the more you buy, the more you save!"

Sam's Club also offers an explanation on their web site:

"Because members pay a yearly fee, Sam's Club consistently works to meet their expectations by operating in a cost-effective manner offering big deals on general consumer merchandise and other services."

These represent the so-called "value marketing through cost advantage" argument that the sellers have made. The cost argument, however, does not solve the puzzle, because cost sharing could better be sought if they broadened the

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1 Tel.: +82 2 880 6934.
2 "Wholesale Club Industry", Harvard Business School, Case 9-594-035, p. 4.
3 *DNS Retailing Today*, May 5, 2003, 42 (9), p. 6; *Stores*, July 1993, p. 6.

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customer base by simply getting rid of the membership policy. A different answer provided in the frequently asked questions (FAQ) section of the previous Costco/Price Club's Web site is the following.[4]

"Membership gives our members a sense of ownership and instills loyalty."

This does not account for the phenomenon, either. If that is the reason, why do other retailer formats not adopt the same membership policy? Therefore, exclusive membership policy has to have other rationale if it is to be explained satisfactorily.

One plausible answer comes from the area of nonlinear pricing. As a special case of two-part tariff, a fixed fee structure can be explained by the retailer's profit maximizing behavior (Wilson 1993). More specifically, with the existence of fixed fee, heavy buyers pay less than do light buyers for the same product, since the fixed fee is spread over more units. With that, membership fee policy can be used to have consumers self-select in such a way that heavy buyers join the club membership while light buyers do not. This exclusive membership helps warehouse clubs realize superior operating efficiency through narrow product depth, special bulk packaging, fast turnover, and so on. This segmented pricing is profitable as well because it enables a retailer to remain competitive in serving low-cost customers (i.e., heavy users) while still profitably serving the high-cost (i.e., light users, among members) segment (Nagle and Holden 1995; Blattberg and Neslin 1990, pp. 95–102). In a related study by Fruchter and Rao (2001), the membership fee is justified for maximizing discounted profit in a *growing* service market in which the average usage (such as internet service provider's service) declines with the number of customers.

Though these claims provide valuable insights, they do not provide a complete story since they view the warehouse club as a profit-maximizing *monopolist*. The purpose of the current research is to expand our understanding of the practice of the warehouse club membership fees to a more general setting (i.e., competition). Although warehouse clubs compete with many different formats (e.g., category killers such as Home Depot and Office Max), supermarkets are considered their prime competitor (*Harvard Case* 9-594-035 "Wholesale Club Industry," p. 13).[5] Accordingly, a competition between a supermarket and a warehouse club becomes the basic setting of our model.

Among the unique characteristics of the warehouse club is its no promotion policy and low merchandise assortment. For example, a typical warehouse club carries 4,000 SKUs, contrasted to 18,000 for a typical supermarket and 45,000 for a discount store. This asymmetry of product assortment gives an important implication to our analysis. That is, in order to buy items that the warehouse club does not carry, every consumer must go to a supermarket whether or not she is a warehouse club member. Joining a warehouse club incurs inconvenience, due to *additional trips*, since the consumer could have filled her basket by one time shopping at a supermarket. In addition, purchasing at a warehouse incurs two other cost items: the membership fee and the inventory cost of buying in a bulk quantity. The tradeoff between a lower retail price and the added costs is the key driver of our model.

In this paper, we build a consumer model of store choice and analyze a duopoly model of competition between a warehouse club and a supermarket. Our results indicate, among others, that the membership fee is related with the supermarket's promotional activities. This connection provides another explanation for the existence of the membership fee: a mechanism to limit the size of a market segment, called the "cherry pickers," members of which pay the membership fee but purchase at a supermarket whenever there is a promotional discount. Without the membership fee, the majority of consumers would switch between the stores freely, thereby intensifying price competition. They are different from our definition of cherry pickers because there is no membership issue from the start. Combined with lower unit prices, the membership fee allows the warehouse to keep its loyal consumers as well as part of cherry pickers' purchases when there is no supermarket promotion. That is, as long as the supermarket has promotions in terms of temporary price reduction, it is optimal for the warehouse club to charge membership fee to create its own "back-yard" customer base. We found that the larger the price discount, the higher is the membership fee; whereas the more frequent the supermarket promotions, the lower is the membership fee. The retail price of the warehouse club moves in the opposite direction from the membership fee.

We present the consumer decision model as well as the firms' profit models in the following section. The next section derives a set of reaction functions and the equilibrium solution. Then we employ comparative statics of the equilibrium solution to investigate effects of the model parameters on pricing decisions. These findings are summarized and managerial implications are derived in the discussion section, and the last section concludes the paper with delineating future research topics.

## The model

In this section, we derive demand and profit functions from a distribution of consumer "travel costs." For simplicity, we focus on a single product that is carried by both the supermarket and the warehouse club. Although there are several other factors affecting consumer choice between retail formats such as assortment, service, and brand consistency (Messinger and Narasimhan 1997; Krishnan et al. 2002), we limit our scope to the pricing aspect in a competitive setting.

[4] Costco and Price Club merged in 1993, and as resuming the Costco name in 1997, the company removed this statement from its revamped web page.

[5] For tractability, we do not model the competition among supermarkets and among warehouse clubs. Incorporating it would be a challenging but meaningful future research direction.