

Chapter 10

Competition in Supply Chain

Shabnam Rezapour
Urmia University of Technology, Iran

ABSTRACT

Supply chains are one of the most important parts of the today's markets. In today's competitive markets, supply chains are formed by several competitive companies and work in the markets in the presence of several competitors such as rival companies or other supply chains. In such an environment different form of competitions exist within and between supply chains.

In this chapter, first we will introduce the different forms of competition in the markets and the ways used in the literature to model them. Then we will discuss the kinds of competitions that exist in the field of supply chain. Finally we will present one of the works that have been done in each field in more detail.

1. INTRODUCTION: COMPETITION IN TODAY'S MARKET

Nowadays there are a growing number of industries in which enormous number of competitors violently try to obtain larger market shares by providing lower retail prices, higher service levels, higher qualities, nearer retail facilities, high quality supplying facilities, etc. "Dynamic" and "competition" terms are usually used to explain the specification of today's markets by the professionals. For example in the high-tech products' market, Microsoft and Symbian are two of the important software suppliers and HTC and Nokia

are two of the important device manufacturers. Recently to improve their competitive characteristics, they decided to compete with each other in the form of SCs instead of individual firms. Now in this market, a chain that consists of Microsoft and HTC competes against another chain that consists of Symbian and Nokia. In the poultry market, Purdue and Tyson companies modify their supply network to be able to compete against each other and other small competitors of the market in a better way. Dell Inc. and Wal-Mart Stores Inc. devastated their competition by reinventing their SC network (Taylor, 2003). In the book market, there is a violent competition between Amazon and Barnesandnoble publications. Rapid delivery of the ordered book is their competitive specification.

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The competitiveness degree of an industry or a market depends on two important factors:

- The number of competitors who want to capture the demand of the customers.
- The easiness and hardness of entering and exiting the market for a new competitor in the long run.

Type of competition in the markets has a wide range. At one extreme the market is monopoly. In this kind of market, only one industry is dominated in the market and sets the prices itself (there is no competition). However often in these cases, some regulation is imposed by the government. At the other extreme, Market is highly competitive (sometimes called perfect competition). In this kind of market, there are many competitors who have little or no control over the price. Detail assumptions of perfect competitive market are as follows:

- There are many players (competitors) in this competition and each player has an insignificant market share relative to the overall market. Therefore a price taker player can not affect price of the product in the market with a change in its own supply.
- All the players supply similar or completely substitutable products to the market. Customers of the market perceive them to be identical.
- The customers of the market have perfect information about the competitive suppliers of the market. For example they know the prices that competitors charge for their products.
- It was assumed that all the competitors of the market have equal access to resources, technology, science, and etc. Any technology development is spilled over all the competitors of the market.
- The market is open to any new competitor and also there is not any barrier to exit it in the long run. This property affects the profit of the competitors in the long run.

- There are not any externalities in the manufacturing and consumption parts. Thus there is not any difference between private and social costs.

When any of these assumptions are dropped, we face with the imperfect competition type.

Within this range, oligopoly and duopoly markets exist. In an oligopoly market, a few competitors dominate the major part of the market and the industry is highly concentrated. Oligopoly market is the most common type of market. In these markets, competitors sell similar or highly substitutable products. Often there are some significant barriers to enter into this kind of markets. In a duopoly market, two main competitors control the market. However there can be several smaller players in the market. For example in the aircraft industry, main players are Airbus and Boeing.

Today's fierce competitive markets force companies to compete as integral parts of chains instead of independent firms with unique brands. Also working of firms as a chain requires a network structure with efficient product flow through it.

Taylor (2003) mentions that "In 21st century, being the best at producing and or selling a superior product is no longer enough. Success now depends on assembling a team of companies that can rise above the win/loss negotiations of conventional trading relationships and work together to deliver the best products at the best price. Excellence in manufacturing is just the admission fee to be a player in the larger game of SC competition."

According to what mentioned above, SCs and competition among and within the SCs is the most important specification of the future's markets.

2. DIFFERENT KINDS OF COMPETITION IN THE LITERATURE

Three types of analysis have been carried out about competition in the literature.

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