Assessing the factors Associated with Intensity of Distribution and Selecting an Optimized Distribution Network

[1]Mousa Rezvani , [2]Shahram Gilaninia, [3]Bahram Sharif
[1,2]Islamic Azad University, Astara Branch
[3]Young Researchers Club, Astara Branch, Islamic Azad Univbersity, Astara, Iran

Abstract
In a context of industrial or consumer products, manufacturers differ how they distribute their products to the consumer. Some of them distribute intensively (using a lot of intermediaries) or exclusively (directly to the consumer). In this paper, we study the problem of the choice of a direct or an indirect distribution. Distribution structure has received little attention by marketing scholars with few empirical studies concerning the channel design. The issue is analyzed by an overview of determinants of distribution structure in literature. The results show that the four most important factors that affect company's choice of distribution channel are: (1) consumer habits; (2) product characteristics; (3) the market; and (4) company factors. A conceptual framework with a several items concerning each factor was built to be tested by empirical research.

Keywords
Channels of Marketing; Distribution Structure; Intensity of disstribution.

I. Introduction

The role of distribution is to provide to a company the accomplishment of the task of delivering the product at a right time, place, and quantity at a minimum cost (Bucklin, 1966). Although the distribution problem was one of the first issues analyzed by the marketing researchers in the beginning of the 20th century (Bartels, 1965), the distribution problem has an enormous importance in the marketing literature and managerial contexts today. Empirical research in this area must be set up to develop more profitable ways to companies to reach the market.

According to Stern and Reve (1980), channel theory is divided into two orientations: an economic approach and other behavioral. First analyzes the efficiency of the channel, studying issues like channel design and structure. The latter is sociological oriented, focusing on power, cooperation, satisfaction and conflict in channels.

The structure of channels requires a set of strategic decisions (Rosenbloom 1999; Lilien et al. 1992): the first decision determines the appropriate intermediary type, e.g. wholesaler, retailer, franchise, broker, direct sales force; second is distribution intensity (how many intermediaries to include and number of levels of a channel structure).

The second strategic decision in a channel, distribution intensity, is a key element of the channel strategy (Coughlan et al., 2001; Lilien et al., 1992; Jain, 2000), and often dictate all the channel structure influencing the type of intermediary, the coverage of the market, and the kind of distribution (direct or indirect).

A variety of approaches has been taken to distribution channel, but distribution structure and intensity has received little attention in academic research (Rangan, et al. 1992; Frazier and Lassar, 1996; Rodriguez et al., 2005; Gattorna 1978). Marketing researchers are more concerned to management issues like power, conflict, satisfaction and performance (Gaski 1996).

Few empirical studies were conducted to study distribution intensity and structure. Most of ideas concerning channel design issues are underlying and theoretical that predicts the choice of channel based in some factors. Although these constructs have been well accepted by marketing scholars, empirical research has to be done to confirm these assumptions and to find new factors determining the channel choice. Hence, this article aims to review the distribution structure literature and builds a framework analysis to be tested by empirical studies.

II. The channel design issue

Stern and El-Ansary (1982) affirm that a channel is not easy selected; there are some constraints such as the availability of good middlemen, traditional channel patterns, product characteristics, company finances, competitive strategies, and customer dispersion question. Its is the same idea of Mcvey (1960) who state that channels networks were not necessarily designed under the control of one type of organization and it faces limited choices in designing the channels for their products. The author defend that "choice of a channel is not open to any firm unless it has considerable freedom of action in matters of marketing policy."(Page 02). According to this approach the producer has a variety of limitations as limited choice of types of middlemen, customers and locations of trading areas.

Some logistics authors say that the channel choice is a cost and financial decision (Lambert 1981; Bowersox 1969). Otherwise Lilien et al. (1992) says that the channel select decision is not only an economic decision but also on the control aspects of channels and their adaptability.

Wilkinson (2001) affirms that the current channels literature are not able to explain how a given channel structure came to be and how it will change over time. The assumptions analyzed by the theory are simplistic and economic approach (see Balderston, 1958; Baligh and Richartz, 1966)

The channel design literature is not sure yet if a firm choose freely or adapt in a given channel structure. Hence there is a need to develop more research about how firms operate in a channel structure or only adapt to them (Wilkinson, 2001). So, the questions arise, Firms are able to choose or only adapt in a given channel structure? What factors determine the choice or the follow in a channel? This article aims to give some highlights to answer these questions. In the next section we present the constructs that concerns to distribution structure, after, a framework is built based on the literature. Finally we present some conclusions and future research suggestions.

III. Factors Determining Distribution Structure

The primary theoretical statement links distribution structure with class of products (Frazier and Lassar, 1996; Rangan et al., 1992). The class of products are related with the classification of consumer goods (convenience, shopping and specialty) first proposed by Copeland (1923). His intent was to create a guide for the development of marketing strategies by manufacturers. His purpose was to show how consumer buying habits affected the type of channel of distribution and promotional strategy (Bucklin, 1962). According to these characteristics convenience goods are associated with intensive distribution, shopping goods require selective distribution and specialty goods are related with exclusive distribution. Convenience goods are consumer goods and services that the consumer buys frequently, immediately and with a minimum of comparison effort. Shopping products are less frequently purchased and consumers spend considerable time and effort gathering information and comparing alternative brands. Specialty products are consumer goods with characteristics or brand identification for which a significant group of buyers is willing to make a special purchase effort (Kotler 12005).

Another work that links the distribution structure with the product characteristic is presented by Aspinwall (2002) that predicts that channel outcomes are based on five product characteristics classified in colors scale (table 1).

Table 1 : Colors Scale based on Products Characteristics of Aspinwall

Characteristic	Red	Orange	Yellow Products
Replacement rate	High	Medium	Low
Gross Margin	Low	Medium	High
Adjustment	Low	Medium	High
Time of	Low	Medium	High
Searching Time	Low	Medium	High
Channel	Long	Medium	Short

Source: Aspinwall (1962)

The replacement rate of a product is the frequency which a product is purchased. According to Aspinwall's framework a high ratio of replacement rate will require intensive distribution because of the shipment costs. The gross margin is also a factor because a high gross margin allows the company incur in the costs of direct distribution. The adjustment factor refers to the amount of change that is required at the point of purchase by the consumer. Time of consumption is the time it takes for the consumer to consume the product. Search time refers to shopping time.

Miracle (1965) adds some distribution policies according to some characteristics of products (table 2):

Table 2 : Marketing Channel Policy according to Product Characteristics

	Intensity of distribution				
Product	Intensive	Moderately	Some	Considerable	Highly
characteristics		intensive	selectivity	selectivity	selective, or direct sale to customers
Unit Value	Very low	Low	Medium to high	High	Very high
Significance of each individual purchase to the consumer	Very low	Low	Medium	High	Very high
Time and effort spent purchasing by consumers	Very low	Low	Medium	High	Very high
Rate of technological change (including fashion changes)	Very low	Low	Medium	High	Very high
Technical complexity	Very low	Low	Medium to high	High	Very high
Consumer need for service (before, during or after sale)	Very low	Low	Medium	High	Very high
Frequency of purchase	Very high	Medium to high	Low	Low	Very low
Rapidity of consumption	Very high	Medium to high	Low	Low	Very low
Extent of usage (number and variety of consumers and variety of ways in which the products provides utility)	Very high	High	Medium to high	Low to medium	Very low

Source: Miracle (1965)

Discussing about industrial distribution, Webster (1976) made a field study with 31 manufacturers in eight states of USA, and realized some factors that influence intensity of industrial distributor:

1. Total market potential and its geographic concentration;
2. The manufacturer's current market share and the intensity of competition;
3. Frequency of purchase and whether the product is an MRD (maintenance, repair, and operating supplies) or an OEM (original equipment) item;
4. Whether lack of availability could interrupt the customer's production process;
5. Amount of technical knowledge required to sell or service the product;
6. Extent of product differentiation, determining how important immediate availability is a competitive variable;

The work of Bucklin (1966) contributed to the issue stating that at distribution, four service output levels are important: market decentralization (fragmentation), lot size, assortment, and waiting time. According to the author firms chose channels that minimized the distribution costs associated with delivery time of these outputs. Delivery time is the main factor that predicts the structure of a channel. According to the author with a very short delivery time, the intermediate inventory is necessary because only in this way can goods be rushed quickly to the consumer. As more the consumer wants the good quickly, the more the inventory and safety stock is needed. These factors create high costs and an indirect channel is required. But, there are a point that the delivery time allowed to the consumer receives the good is larger, that it becomes possible and cheaper to the manufacturer ship goods directly. As the greater the delivery time the greater are the economies of direct shipment because eliminates the costs of handling, and maintaining the inventory.

Lilien (1979) ran a discriminant analysis with data from a sample of 125 industrial products to study the impact of product and market factors on the selection of direct or indirect distribution. The study showed that the channel varies from direct to indirect based in the following:

1. Size of the firm. The bigger is the company the better they are able to support a company-owned distribution channel.
2. Size of average order. With the increase of the average order, direct distribution becomes more economical.
3. Technical-purchase complexity. The greater the importance of technical service to the product's success, the more likely is direct distribution.
4. Stage in the product life cycle. New products are better available in direct channels.
5. Degree of standardization. The complexity of a product is positively related to direct distribution.
6. Purchase frequency. Frequently purchased products require less selling effort and are therefore less frequently sold directly.

Another approach involving channel structure is Transaction Cost Theory (TCT), which has as principal author Williamson (1975). This theory analyzes issues of vertical integration and governance. Rangan et al. (1992) presented some constructs of TCT used in Marketing Channel Studies based on the works of (Anderson and Schmittlein 1984; John and Weitz 1988; Klein, Frazier and Roth 1990) as we show in table 3.

Table 3 : TCT constructs in Marketing Channel Studies

	Salesforce if:	Distributor if:
Product customization requirements	High	Low
Need for special equipment or services	High	Low
Complexity of customer buying and decision-making process	High	Low
Complexity of product information to be exchanged	High	Low
Transaction size	Large	Small
Rate of technological change	High	Low
Volatility of demand	High	Low

Source: Rangan et al. (1992)

The exclusive empirical work on distribution intensity was conducted by Frazier and Lassar (1996). The authors investigated different distribution intensity in the same category of products. The Data was collected from manufacturers in the consumer electronics industry that accepted the following hypotheses:

1. The higher a brand is positioned on quality, the lower is its level of distribution intensity.
2. The higher a manufacturer's target focus fora brand, the lower is its level of distribution intensity.
3. The higher a manufacturer's coordination efforts, the lower is a brand's level of distribution intensity.

0. The inverse relationship between manufacturer coordination efforts and distribution intensity is weaker when retailer investments are higher.

1. The higher the number of manufacturer support programs, the higher is a brand's level of distribution intensity.

Another author that contributes to the issue is Mallen (1996) that adds possible influencing factors of a channel structure. According to the author the factors that influence a channel structure in a given situation may be the market, the marketing mix, the resources and the environment.

According to Mallen the consumer is a pivotal point in the market context. Some important indicators are the density of the market, its size and its buying habits. Marketing mix also affect the channel choice based on product distribution. The use of a product, its frequency of purchase, rapidity of fashion change, perishability, the service required, its value, and its bulk. The life cycle of a product can also affect the channel selection. A new product has to be sold through more direct and selective channels than would be required after it matures. The number of products produced by one company is also a factor determining the channel choice. A company with a wide range of similar products can afford to take advantage of the economies selling more directly spreading the fixed expenses of the outlet. The pricing factor that influence the channel choice is manipulation of margins. If a firm desire price control the directness of distribution is available. The promotion strategy is also affected by the channel choice. The more directness of a channel the less is the use of advertising and sales promotion because the use of personal selling. The use of direct channels require less promotional budget. Also, the use of indirect distribution requires the use of the mass media, since the market to be reached is often enormous and dispersed.

IV. The Framework Analysis

After presented the theories concerning distribution structure, we are able to build the following framework (table 4).

Table 4 :

	Channel of Distribution	
	Short if:	Long if:
Consumer Habits		
1. Frequency of purchase (Copeland 1923; Miracle 1965; Webster 1976; Lilien 1979; Mallen 1996)	Low	High
2. Purchasing effort (Copeland 1923; Miracle 1965; TCT)	High	Low
3. Rapidity of consumption (Aspinwall 1962; Miracle 1965)	Low	High
4. Significance of purchase (Miracle 1965)	High	Low
5. Waiting time (Bucklin 1966; Webster 1976)	High	Low
Product Characteristics		
6. Replacement rate (Aspinwall 1962)	Low	High
7. Gross margin (Aspinwall 1962)	High	Low
8. Adjustment (Aspinwall 1962; Miracle 1965; TCT; Mallen1996)	High	Low
9. Searching Time (Aspinwall 1962)	High	Low
10. Unit value (Miracle 1965)	High	Low
11.. Product complexity (Miracle 1965; Lilien 1979; TCT)	High	Low
12. Product life-cycle stage (Lilien 1979; Mallen 1996)		
13. Volatility of demand (TCT)	High	Low

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14. Brand positioning on quality (Frazier and Lassar 1996)	High	Low
15. Perishability (Mallen 1996)	Low	High
Market Factors		
16. Target focus on mass market (Bucklin 1966; Lilien 1979; TCT; Mallen 1996)	Low	High
17. Rate of technological change (Miracle 1965; TCT; Mallen 1996)	High	Low
18. Intensity of competition (Webster 1976)		
19. Geographic concentration of market Mallen (Webster 1976; 1996)	High	Low

Company Factors		
20. Range of products (Bucklin 1966;	Wide	Narrow
21. Order size (Bucklin 1966; Lilien 1979;	Large	Small
22. Market share (Webster 1976)	Low	High
23. Desire of control (Frazier and Lassar	High	Low
24. Retailer investments (Frazier and	Low	High
25. Number of support programs (Frazier	Low	High
26. Promotion budget (Mallen 1996)	Low	High
27. Size of the Firm (Lilien 1979)	Large	Small

V. Conclusion

Distribution intensity has received little attention by marketing researchers lately. Our work aimed to contribute to this area reviewing the theory concerning the channel choice to provide some highlights about how firms choose their structure of distribution. After a literature review we built a framework with several items to be tested by empirical studies.

Further research must be set to accomplish more understanding about channel design, and to answer the questions presented in the beginning. With field studies on channel structure we will be able to know if a firm can choose freely a channel or only adapt to it, and know what factors determine a given channel structure.

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