

A study on packaging factors influencing on export development

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ABSTRACT

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Packaging is an important instrument of commerce and trade in the world, it plays essential role in increasing sales and export and thus it maximizes profits generated in enterprises. Hence, the appropriate packaging for the producer generates necessary incentives for production, partly preserves them against zany opponents, and finally provides the customer with much more variety and choosing the right products. Packaging in fact, is a major contributor to the performance of customer relationship management. This survey determines five packaging factors influencing on export development including communications, infrastructure, awareness, design and technical extraction. Through the implementation of principal component analysis, the effective role of packaging components on exports is measured. Exploratory research model indicates that all five packing components were effective in export development of food industry.

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1. Introduction

Product packaging is as important as one of the market principle (4P), including Prices, Products, Places and Promotions. Product packaging has been a key for the success of most business units. Product packaging not only influences on customers' decision but it also advertises directly to the customer (Auttarapong, 2012; da Cruz et al., 2012). Packaging assigns an image to a commodity and helps distinguish it from other commodities. Furthermore, it stimulates desire for consumption. An effective package design engages consumers' attention and improves their experiences, prolongs lingering in front of the product, and consequently causes a sales opportunity to take place. As a result, the more effectively the visual sense of consumers is stimulated by packaging, the more change of sales' increase. The purpose of packaging is to ensure that the products can be seen and considered, assisting shoppers in selecting them from the shelf. Similar to advertisement, striking packaging is necessary in competition because consumers prefer easily identifiable packaging.

Packaging also sends some specific messages. Packaging, when displayed in stores, has different purposes to catch consumers' attention while on the shelf. It can be used to identify products, to distinguish a product from its competitors; to exhibit product advantages; and to attract consumers to

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make a purchase (Chou & Wang 2012) . It adds to the reputation of the manufacturer of the brand's distinguished conventional source of ideas and it helps to create the brand's image (Auttarapong, 2012), and as a voiceless salesperson, packaging attracts the consumers' eyes and facilitates self-promotion. Even without advertising, sales and market shares can be raised through good package designs. Studies show that two-third of the buying decisions of consumers are influenced by product packaging (Chou & Wang, 2012)

2. Packing

Trade dress generally refers to the characteristics of visual appearance of a product or its packaging, including color scheme, texture, size, design, shape, and placement of words, graphics, and decoration on a product or its packaging . The current study introduces these factors as trade dress for package differentiation. Some studies classify trade dress into two categories: product design and product packaging. The former covers the shape, surface configuration, and other design features, whereas the latter is associated with the packaging created through the arrangement of all design elements, including image, layout, color, color combination, and others (Chou & Wang, 2012).

The packaging design creates value added to a product, which has major influence on customers' purchasing decision process especially at the point of purchase. However, most entrepreneurs lack knowhow, knowledge and skills regarding technology of packaging design. They encounter problems of selecting appropriate designs, which match with their products as well as packaging design systems. These problems cause time lost and an increment in cost of production.

Nowadays, SME's local products are causing a major problem of having too much product left in the market. An entrepreneur loses a percentage of income partly because of the lack of skills in the design process appropriate with product packaging. In order to help solve the problem for those entrepreneurs, the system ought be designed to help entrepreneurs in the visual element on design product packaging by expert system for support product packaging, concept of product, identity of product, characteristic of product and the customers' requirements. According to various elements, this is considered as a consistent and appropriate method to the characteristic of the product. An entrepreneur is capable of specifying product attributes with its condition such as graphic element and application aligned with the product package. This concept is designed to give the target audience awareness, product recognition, and appropriate responses. It also helps to reduce expenses and production time, however, many studies in this area emphasize on visual elements of packaging such as colors, fonts, languages and styles (Auttarapong, 2012). An element in packaging design, on the other hand, comprises dots, line, plane, shape, and color. The specific process for designing should conform to the principles of design, which includes the doctrines of compositional arrangements such as harmony, proportion, balance, rhythm and repetition, unity emphasis, and contrast (Ritnamkam & Sahachaisaeree, 2012). A unique package design, to some degree, is as essential as its product. If Coca-Cola were no longer packaged in its well-known bottles, it would no longer be Coca-Cola.

Some studies have even investigated the reaction to package design of consumers of six countries in Europe. The result shows that consumers judge the brand value by the aesthetics of the design, which may influence on their purchase desire. In a hypermarket, where consumers see nearly 40,000 types of packages, 70% of the buying decisions depend on the point of purchase. Some studies proposed six distinguishing factors for assessing packages including size, shape, texture, color, character, and brand. Besides, packaging elements can be divided into two parts of graphic elements (color, typeface, form, and image) and structural elements (shape, container size, and texture), or into visual elements (graphic, color, form, and material) and verbal elements (product information, producer, country of origin, and brand). For instance, the difference between brands can be categorized through packaging colors. Packaging is truly a factor, which may influence on the buying decision. Previous studies indicate that consumer choices depend on product attributes and shopping experience. These

“in-store cues” that influence on consumers’ decisions are also influenced by packaging and promotion (Chou & Wang, 2012).

In particular, researchers notice that packaging color influences on sensory and hedonic ratings, signals product's attributes and detects the consumer's insight of the product inside the package, which in turn influences price and quality perceptions (Ares & Deliza, 2010). Regarding plain packs, researchers have only considered white or brown, which may not be the best colors to encourage consumers. Madden et al. (2000) reported that in Austria white has calming, peaceful, gentle and pleasant connotations. Brown, on the other hand, is considered as one of the most suitable colors for tobacco due to the congruency between the color of the pack and the product inside it. Furthermore, a study carried out on the impact of color change reveals that any incongruity between product category and packaging color maintained a negative impact on product attractiveness. In different cultures, gray might be more suitable for plain packaging. First, gray is related to specific meanings like “hospital” in America, Japan, Korea, and China and therefore illness. Second, gray is associated with negative meanings for the Chinese who consider gray as “lifeless, old, and shapeless” (light gray) and “oppressive, no future, disagreeable” (dark gray). Finally, gray is the color French consumers dislike the most (Gallopel-Morvan et al., 2013) .

There are also some studies indicated that packaging could attract consumers’ attention, transmit the message of the product, impress consumers with the image of the product, and help distinguish one product from another. In many cases, it is important to have a good perception of optimal packaging elements such as logos, slogans, taste, visual attraction, promotions. Consumers may take the initiative in searching for the marketing stimuli effective for finding a package. Among the various products on the shelves, differentiation in the arched surface of packaging may influence on the visual search for logo typography. Such issues may also prompt our interest in the relationship between package design elements and package differentiation. Relevant research has indicated that the proportion of length to width of packaging could influence on preference for a product and, subsequently, market sales(Chou & Wang, 2012) and form of product packaging must be able to match with characteristic of product type before create a pattern form (Auttarapong, 2012).

The population of most developed countries is ageing. Despite continuing medical advances, ageing brings with it a host of issues, not least a loss in strength and dexterity. One major area of concern is the ability of elderly consumers to evaluate packaged goods such as food and medicines. In previous studies, the authors developed a numerical model of a human hand used to investigate the effect of physical dimensions and choice of grip on joint stresses to help understanding between physical effort, ability and discomfort. This previous work was supported by ethnographic investigations and led to recommendations for packaging design (Yoxall et al., 2013), which visually indicates how a product is different from others, and concentrates on a specific group of consumers for expected purchasing behavior (Chou & Wang, 2012). The current mass marketing method tries to absorb a wide range of customers, which strategy can hardly succeed due to the existing fierce product competition, and it is due to the fact that a new generation of consumers may hesitate to make decision until their genuine requirements are proved to be met. As a result, in marketing, customers are to be broken down into clusters of specific groups and various strategies are assigned to each of the groups to attract targeted responsive behavior. Packaging design is also a crucial factor representing the products’ content and identity, which could draw the potential purchaser’s attention (Ritnamkam & Sahachaisaeree, 2012).

Shelf life is essential factor for increasing consumers’ demand for consumption. In this case, correct methods of packaging may help to the quality preservation. Vacuum packaging (VP) is one of the natural preservation packaging methods, which may enhance the shelf life and overall quality for a long time (Etemadian, et al., 2012). Modified atmosphere packaging (MAP) is a technique for

modifying the in-package atmosphere using polymeric companies with or without perforations to reduce quality deterioration and improve shelf-life of the packaged produce through water loss, metabolic and microbial activity reduction. The response of the packaged produce to the generated atmosphere is influenced by controllable factors, such as packaging permeability, produce respiration, and storage environment as well as uncontrollable factors, such as specie, cultivar, cultural practices, stage of development, harvest technique, tissue type, and postharvest handling. The permeability of the commercially used packaging depends entirely on their types, areas and thicknesses (Xanthopoulos et al., 2012). In a general case, the temperature distribution inside a packaging unit will be complex, non-homogenous and time dependent and will be influenced by the ambient conditions, type of storage, dimensions and geometry of the packaging, cooling techniques used, the temperature history of the product and thermal properties of the packaging material and the food product. The quality and safety of the perishable food products may also be influenced by temperature abuse, which may happen during different steps in the supply chain. The temperature variation has a big effect on the microbial growth and chemical properties of the food products and it should be included in the estimation of the main food parameters such as shelf life and risk of illness (Gospavić et al., 2012). The recycling of packaging waste is the primary objective of the community with clear targets set in the European law (Massarutto et al., 2011). The rejects of packaging waste sorting plants should be mainly composed of packaging plastics (PE, PP, PS, Pet and PVC). However, significant quantities of inappropriate materials such as paper, glass, metals and non-packaging plastics are often present in such wastes. The composition of such rejects varies with the specific conditions of the sorting plant and with the time of the year (Lopez-Uriónabarrenechea et al., 2012). In fact, package development involves considerations for sustainability, environmental responsibility, and applicable environmental and recycling regulations. It may involve a life cycle assessment, which considers the material and energy inputs and outputs to the package, the packaged product (contents), the packaging process, the logistics system, waste management, etc. (Auttarapong, 2012).

3. Export

Exporting goods and services play an important role on economy of developing countries. There are many countries in the world whose economy depends on exporting raw materials such as oil and gas. Many believe that countries cannot develop their economies as long as they depend on exporting one single group of raw materials. Therefore, there is a need to help other sectors of industries build good infrastructure for exporting diversified products. The key success for any company to survive on the market is to gain more market share by exporting more products to all different countries. The main challenge is to keep good quality products with relatively suitable prices to satisfy customers and there are virtually tremendous efforts to determine the most important factors not only to hold present customers but also to absorb more clients through the global economy (Babakhani & Haji, 2011). Firms often have a set of strategic goals such as strategic presence in the export market and improved competitiveness. Hence, the attainment of strategic goals should also be among the outcomes captured when measuring export performance. Achieving competitive advantage can be realized by responding to changing conditions and opportunities in the environment and can be in the form of cost or differentiation advantages. While cost advantages provide a product at a lower selling price to the end user; differentiation advantages offer customers a superior physical good with a better design, better packaging or better brand image (Durmuşoğlu et al., 2012).

4. The proposed study

In this paper, we present an exploration study to find important factors influencing packaging dairy products in Iranian dairy industry. The proposed study designs a questionnaire consists of 28 questions and distributes it among 250 employees who work for one of the most popular dairy producers in Iran called Pegah. Cronbach alpha, Kaiser-Meyer-Olkin Measure of Sampling adequacy and Bartlett's test of Sphericity approximation Chi-Square are 0.823, .742 and 1.215, respectively and

they are within acceptable limit. The study has determined five factors including infrastructure, awareness, design and communication, which are presented in details in next section. Table 1 and Fig. 1 demonstrate the results of rotated component matrix.

Table 1
Rotated Component Matrix

	Component									
	1	2	3	4	5	6	7	8	9	10
Availability of	0.621					0.381				
Age	0.608									
Availability of expiry	0.581									
Gender	0.538									
Color	0.532									
Product specifications	0.509									
Environment		0.614								
Recycling		0.571								
Atmosphere		0.53					0.371			0.395
Amount of air inside		0.529	0.506							
Easy features for			0.601							
Motto			0.593							
Information about			0.56				0.337			
Graphics				0.741						
Size				0.704						
Odor					0.879					
Durability					0.803					
Producer's information						0.758				
Brand name						0.571				
Materials							0.735			
Texture						0.42	0.563			
Image				0.37			0.382			
Logo								0.685		
Inventory								0.673		
Temperature		0.41						0.479		
Writing style									0.747	
Language									0.723	
Shape										0.721

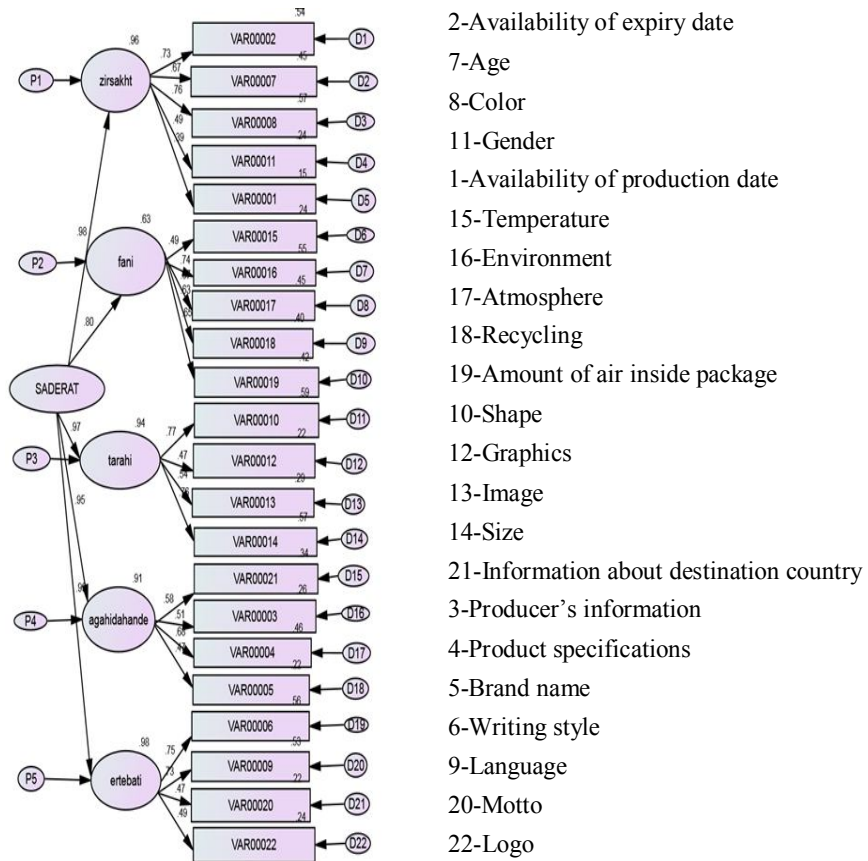


Fig. 1. The summary of factors influencing on food packaging

5. Discussion and conclusion

Currently, by development of science and communication, all individuals, organizations and suppliers know the values of packaging, especially in business, marketing and sales. People normally follow the most proper, economic and effective methods for delivering goods to increase competitive potential in domestic and foreign markets. Today, in addition to the role of packaging in infrastructure that protects goods, there are so many other roles and responsibilities assigned to it to inform the buyer about the date of production, expiration date, producer and production information. By employing proper slogans and logo designs in packaging, communicating with customers is facilitated. This paper has determined five important factors influencing on export development in Iranian food industry including communication, infrastructure, awareness, design and technical. Table 2 summarizes the effects of these factors.

Table 2

The summary of the factors influencing on export development

Exploratory factor	Important factor
Communication	0.99
Infrastructure	0.98
Awareness	0.97
Design	0.96
Technical	0.82

Based on the results of confirmatory factor analysis and output of each of the variables on the Amos software, all components are described below. Table 3 is prepared based on the standard model:

Table 3

The results of components influencing export development

Row	Component	Variable	Important factor
1	infrastructure	Availability of expiry date	0.72
		Age	0.59
		Color	0.81
		Gender	0.47
		Availability of production date	0.38
2	Technical	Temperature	0.56
		Environment	0.72
		Atmosphere	0.65
		Recycling	0.64
		Amount of air inside package	0.68
3	design	Shape	0.75
		Graphics	0.41
		Image	0.5
		Size	0.74
4	awareness	Information about destination	0.53
		Producer's information	0.5
		Brand name	0.45
		Product specifications	0.68
5	communication	Writing style	0.73
		Motto	0.41
		Logo	0.54
		Language	0.72

In addition, Table 4 and Table 5 summarize testing the effects of various factors on export development.

Table 4
Packaging factors of exported goods affecting the increased exports

The main hypothesis	p	Estimate	Result
communication	P<0.001	1.011	Confirmed
infrastructure	P<0.001	1	Confirmed
awareness	P<0.001	0.637	Confirmed
design	P<0.001	1.03	Confirmed
Technical	P<0.001	0.604	Confirmed

Table 5
The summary of testing the effects of various factors on export development

Alternative Hypothesis	Estimate	P	Result
Availability of expiry date	1.000	P<0.001	Confirmed
Age	0.747	P<0.001	Confirmed
Color	1.123	P<0.001	Confirmed
Gender	0.513	P<0.001	Confirmed
Availability of production date	0.427	P<0.001	Confirmed
Temperature	1.000	P<0.001	Confirmed
Environment	1.326	P<0.001	Confirmed
Atmosphere	1.013	P<0.001	Confirmed
Recycling	1.016	P<0.001	Confirmed
Amount of air inside package	1.200	P<0.001	Confirmed
Shape	1.000	P<0.001	Confirmed
Graphics	0.414	P<0.001	Confirmed
Image	0.537	P<0.001	Confirmed
Size	0.961	P<0.001	Confirmed
Information about destination	1.000	P<0.001	Confirmed
Producer's information	0.953	P<0.001	Confirmed
Brand name	0.815	P<0.001	Confirmed
Product specifications	1.444	P<0.001	Confirmed
Writing style	1.000	P<0.001	Confirmed
Motto	0.582	P<0.001	Confirmed
Logo	0.684	P<0.001	Confirmed
Language	0.977	P<0.001	Confirmed

As we can observe from the results of Table 5, all factors mentioned in this survey have positive impact on export development.

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