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Identifying and rating of marketing mix components for raisin export

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Abstract

Qazvin province is ranked second place in raisin export of Iran. Increasing the rate and export income of the province demands numerous procedures. In this regard, designing and exploiting export mix with operational approach has a great importance. Identifying and screening of mix components, investigating internal relationships among the components and determining their weight and rate is the first step in designing export mix. Based on the comments provided by experts of production, processing and business of raisin, a combination of multiple criteria methods was used. Managers and experts of the companies involved in raisin export in Qazvin province were selected as statistical population. Relationships among these components and their rating was carried out by DEMATEL method and network analysis and the results showed that price and quality are the most effective and most important components of raisin export mix, respectively.

Keywords: marketing mix, multiple criteria decision making, raisin export, Dematel, Qazvin

1. Introduction

It is very difficult to achieve reputation in the current competitive and complex market. Awareness about environmental changes and exploiting these changes toward organizational goals determines the difference between introverted and extroverted companies. Extroverted companies try to satisfy their costumers and their marketing departments search for understanding costumers' demands and providing approaches to develop products demanded by the costumers. The starting point in communication with costumers and adaptation to their demands is identification and designation of marketing mix in enterprises. Influencing factors and components in a mix should be well identified and their importance and weight should be estimated. Continuous evaluation and design of the mix is a key tool in interaction with environment (especially with costumers) and retaining competitive power of the enterprise in local and international markets.

Growth of non-petroleum exports relies on increased variation and volume of the products which itself depends on retaining the production power and their competitive power in global markets (Mazhari et al, 2005). Considering high potential of production of non-petroleum products, especially in agricultural section, increasing foreign exchange through enhanced export of products with relative advantage is of great importance. Achieving this goal depends on adopting appropriate marketing strategies. The role and importance of marketing strategies in success or fail of the organization and hence the countries is well documented (Ghazizadeh, 2011). Following pistachio, raisin is an agricultural product which has contributed in non-petroleum export of our country. During 2001-2007, Iran ranked third after Turkey and United States in exporting raisin; however during 2008-9 this rank has dropped to lower places (www.fao.org). European markets have always constituted 50% of export markets of Iran. Qazvin province has the third place in grapes production and the second place in raisin processing, producing and exporting. About 60,000 tons of raisin are produced in this province, 40,000 tons of which are exported (www.qccim.com). A major local competitor of Iran in production of raisin is Turkey which has increased its annual production to 100,000 tons and dominated the regional market. A great deal of raisin produced in Iran is sold in global markets by the merchants of Turkey under their brand and packaging.

Price of exported raisin of Iran has significantly decreased during recent years. Many producers are not, therefore, able to participate in production and competition field. An important issue in this regard is maintaining Iran history in raisin export via its brand and trademark. According to existing evidence and experts' opinion, a key factor accounting for Iran inability to reach a proper place in global raisin market is lack of presenting an appropriate marketing mix for Iranian exported raisin. It is obvious that the first step toward designing a suitable mix is to identify and determine importance of each component of the mix. In modern marketing, mix is considered as a main pivot for marketing activities. Marketing mix includes all activities a company perform to influence the demands for its products. These activities can be classified in to four variables referred to as 4P, namely: product, price, place and promotion (Katler and Armstring, 2010:86). Marketing mix components are a set of controllable marketing variables which are in hands of managers and decision makers. A consistent and systemic vision on mix constituting

components can significantly assist a country or company to achieve its goal (Doayi 2011). Therefore, the first step is to confirm the internal relationships among the factors. When the relationship is approved, the next step would be their rating (Asgharpour 2009). How can components of marketing mix of raisin be identified? Is the relation and penetration and influencing pattern or severity of the relations are identifiable? How is the weight and rate of each component? Is there any relation between the outputs of the two analyses in export mix design?

2. Literature Review

Kaiser et al (2003) investigated the development of California raisin export. They studied efficiency of California raisin export programs in Britannia and Japan and extracted an import demand equation in both of the markets. They found out that export development programs have improved the demand for California raisin in both the countries and the benefit achieved by this program, especially in Japan market, is much higher than the cost devoted to development of the program. Murthy et al (2009) investigated fruit marketing and its consequents on availability and economical saving in India. One of the products they studied was grape and its main product raisin. The investigation indicated that processing grapes to raisin has more benefits for farmers and by establishing required infrastructure and investment in raisin processing, the processing centers and production of raisin is both qualitatively and quantitatively enhanced.

Adejo et al (2011) investigated pricing system and distribution channels of cashew in Nigeria. The results showed that intermediates play critical role in both distribution and pricing system. Moreover, the authors found out that the price is enhanced in December and October, while is in its lowest rate during early production and a little before it. The authors concluded that it is necessary for generation of an effective marketing to establish a controllable pricing system via accurate storage and permanent supplying of cashew to assure market dynamism throughout the year.

Zeljko et al (2011) investigated the importance of apple marketing in Croatia. They tried to encourage apple producers to apply marketing tools to assure accelerated sale. The authors maintained that enough sales won't be achieved unless the producers are in accordance with marketing activities and appropriate sale is achieved only when apple market is investigated, apple is produced according to market demand and its price is regulated competitively via market mechanism and improvement programs are designed for the market.

Lin (2011) investigated marketing mix and maintaining performance in Taiwan fast food industry using multiple criteria methods. The author identified important indices and variables of fast food mix by means of DEMATEL and then rated the indices using network analysis method. Finally, he rated the fast food enterprises based on above mentioned factors using Simple Additive Weighting (Saw) method. Alaybeyoglu et al (2012) studied weighting of mix components during designing a new product by network analysis. They finally determined investment weight on each component for policy making. by combining DEMATEL and network analysis, Shih et al (2013) investigated design of development policies of information systems of companies. In other words, the authors determined the type of development policies as cooperative performance or outsourcing.

Ashrafi et al (2007) investigated relative advantage of Khorasan province in production and export of raisin. By economical analysis of data during 1340-80, they concluded that during the period Iran had special advantage in raisin export and the product had more suitable place in Iran export market after the revolution and confidence level for presence in global market increased.

According to effective support index, governmental policies and status of domestic market was disadvantageous for producers.

Karbasi and Amadi (2010) investigated consequences of currency rate fluctuations on price and volume of exported raisin Iran. Results showed the lack of a long-term relationship among export volume variables, export price and real rate of currency and considering situation of global competitive market of raisin, increased volume of raisin export increased that benefit of export without significant effect on raisin price. Furthermore, reduced export rate in one year will decrease the export volume in following years due to losing the costumers. Jolayi (2011) studied effect of relative advantages and supporting policies on production of raisin in Qazvin province. The investigation revealed a relative advantage index of 0.78 suggesting its relative advantage. Estimated supporting indices showed that internal policies were not supporting raisin production. Mehrabi Boshrabadi et al (2012) investigated Iran relative advantage in raisin production and export during 1340-88. they found huge fluctuations in raisin relative advantage mode and after an ascending period, it is now in a descending period and is compromised by many factors. The authors concluded that high volume of raisin production and export doesn't indicate its relative advantage. Amiri and Cheshmi (2012) investigated vertical incorporation of raisin exporting companies in Iran. They maintained that these small enterprises are not able to sell their products to foreign merchants separately. This results in reduced selling price and competition in foreign markets. Through this descriptive study, the authors found out that a company with low integration degree has entered raisin export market and with ignoring other companies, it can perform its business with low cost and can exit the market without any loss. Moreover, due to low transaction volume and selling the product in large package, agreement method is practiced instead of marketing, whereas the accepted method is offering the product in small packages and extensive marketing activities. An approach proposed by the author was to pay attention to downstream processes and accentuate on marketing activities and tendency to form unions. Samadi (2008) investigated designing improvement mix of dairy products.

3. Methodology

Considering the goal, this study is an applied investigation and concerning the mode of investigation, it is a field study. Statistical population included all marketing managers and experts of companies active in raisin export in Qazvin province. These companies are divided in to two categories: processing and packaging and business. Population was composed of 54 individuals all of whom, considering availability, are regarded as sample. A three step method was applied. The first step was to identify the main factors of an appropriate marketing mix. In the second step, relation and influencing pattern of these factors in the mix is drawn. Finally, the identified factors are rated. In other words, in the final step, the weights of mix components are estimated for use in following purposes.

For data gathering, library methods such as books, articles, professional magazines and official reports and also survey method or questionnaire were used. Three questionnaire tools for supplying required data for analysis were used which are described below.

4. Instrument

4.1. Questionnaire for identifying mix components

Questionnaire for the first step was prepared via reviewing some literatures and interviewing with a group of managers and experts involved in raisin export companies. Using Likert scale, a series of purposeful questions was designed. The questions are based on fourteen patterns according to mix marketing. The information is given in table 1.

Table 1. the number of questions according to mix component

Number of	factor	Number of	factor	Number of	factor
5	website	1	Health standard	4	quality
3	Distribution channels	1	Low price	2	properties
1	Storage facilities	2	Discount	1	variation
4	transportation	2	Advertisement	1	brand
		2	Sale progress	3	Packaging

To verify authenticity of the tool, content analysis and experts' opinion was used. Cronbach's alpha for whole the questionnaire and individual questions was calculated to investigate reliability and internal coordination of the questionnaire and tests that measure different properties. Cronbach's alpha value for all variables was greater than 0.7 and about 0.94 for the questionnaire, so the applied tool is considered reliable.

DEMATEL questionnaire (identifying interrelationships among mix components)

Using questionnaire of the first step, the main factors of exporting raisin marketing mix and their interrelationships should be determined. Application of DEMATEL method assures the existence of interrelationship among the factors identified in previous step. Indeed, the questionnaire in this step is prepared in a matrix context that main factors screened by previous questionnaire are placed in its columns and rows. Respondents were asked to give their opinions about the rate and severity of these relationships according to five degree scale. Therefore, all the relationships among the factors will be identified and it will be determined each factor has influence on which factors and influenced by which factor (s).

4.2. Questionnaire for evaluating and rating (mix components comparison)

The interrelationship among the marketing mix components is identified using the second questionnaire and the components should be rated. Super Decision software was used for preparation of ANP questionnaire. The software converts the questions in to pairwise comparison tables and use nine degree scale from 1 to 9 (in this scale, preference value of 2,4,6,8 is intermediate meaning that preference for 4 is among that of 3 and 5 denoting relatively preferred or strongly preferred). By applying standard tables and proposing clear information and concept in questionnaire created by Super Decision software, it can be said that the questionnaire has an acceptable validity. The questionnaire contains numerous pairwise comparisons; the reliability of each is calculated by compatibility rate.

5. Data Analysis Method

For each tool introduced in previous section and according to the obtained results, different analysis methods were used as follows.

In the first questionnaire, for data gathered for each question, statistical hypothesis test was applied. One sample t-test was used for this. Statistical test procedure is identical for all the questions. Data were analyzed by SPSS software. Data were analyzed by DEMATEL method in the following step. In this process, interrelationship matrix was prepared and cause-effect graphs for data processing were plotted.

Data achieved by previous analysis are entered in a matrix form questionnaire and matrices of answers of sample members are summarized using mathematical mean method. The obtained matrix is finally normalized. The result is matrix of internal relationships. Threshold values should be calculated to identify significant relationships. The relationships whose values are lower than the threshold value are considered as negligible relations that are ignored, while relationships whose values are higher than threshold value are considered significant relations in cause-effect graph. To calculate threshold value it is only required to calculate mean values of the matrix. Internal relation matrix in super matrix of ANP method can also be used.

To plot the cause-effect graph in internal relation matrix, row sum of entries (Rk), column sum of entries (Jk), and sum of (Rk+Jk) and deduct (Rk-Jk) for K^{th} component should be calculated. sum of (Rk+Jk) shows the importance of each component. Rk shows its influence on other mix components and Jk indicates shows how much an component is influenced by other components. Therefore, (Rk+Jk) is sum of influencing and being influenced items. In other words, the component possessing the highest (Rk+Jk), has the highest level of interaction with other components. Final influencing level of each criterion on other ones is achieved by (Rk-Jk). If (Rk-Jk) is positive, then this component belongs to “cause” group and if (Rk-Jk) is negative, then the component belongs to “effect” group (Lin & Wu, 2008). The values are then presented in a 2-dimensional (2D) graph. Therefore, affecting components and their interrelations in the mix will be identified. Determining these relations and identifying influencing components and components that are influenced by other components is important in designing marketing

policies. The calculations were performed by MATLAB and Excel software. In the final step, data obtained by ANP questionnaire are used to form super matrix. Calculations are performed based on steps proposed by Saati (1986). To put the data in to super matrix, normalization should be performed. The normalized or weighted matrix is then converged. Rate or priority of each component is calculated by convergence of n^{th} power. The calculations in this step are performed using Super Decision software.

6. Results

Completed questionnaire of components identification was collected from sample members. Based on the questions, factors including quality (A), properties (B), variation (C), brand (D), packaging (E), health standards (F), low price (G), sale progress (H), website (I) and storage facilities (J) were identified as main components of the mix. In the next step, data of DEMATEL questionnaire were entered in to internal relation matrix and normalized. Results are presented in table 2. Threshold value in this matrix is 0.092.

1. Table 2. internal relationship matrix

	A	B	C	D	E	F	G	H	I	J
A	0.122	0.094	0.038	0.330	0.171	0.297	0.036	0.118	0.022	0.000
B	0.228	0.041	0.113	0.346	0.135	0.266	0.029	0.089	0.013	0.000
C	0.053	0.020	0.009	0.110	0.069	0.038	0.014	0.028	0.004	0.000
D	0.168	0.058	0.073	0.137	0.211	0.174	0.051	0.131	0.034	0.000
E	0.172	0.067	0.030	0.355	0.120	0.122	0.211	0.098	0.013	0.000
F	0.272	0.072	0.022	0.216	0.095	0.097	0.020	0.087	0.010	0.000
G	0.383	0.263	0.065	0.485	0.344	0.358	0.069	0.113	0.019	0.000
H	0.023	0.018	0.007	0.089	0.047	0.030	0.019	0.016	0.028	0.000
I	0.028	0.010	0.012	0.181	0.036	0.029	0.009	0.109	0.008	0.000
J	0.058	0.040	0.010	0.074	0.052	0.054	0.162	0.017	0.003	0.000

Cause-effect graph shows the position of each component in terms of importance and relationship. Positive portion of the graph indicates causative and influencing components and negative portion shows the components that are influenced.

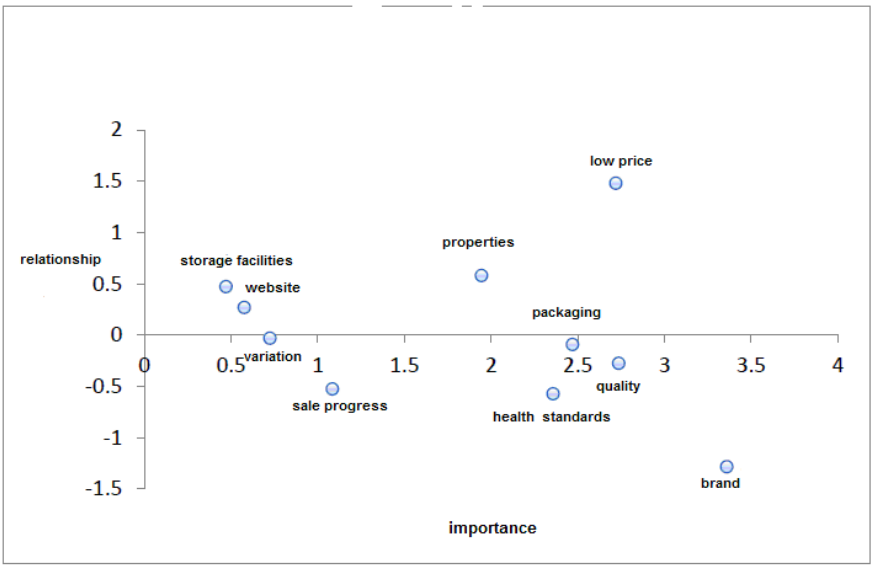

Figure 1. Position and coordinates of mix components in cause-effect graph

Component "price" is placed in the highest position of influencing portion with the largest horizontal distance from origin of coordinates showing its large importance and influencing on other components. Negligible distance of four components namely storage facilities, website, variation and sale progress from coordinates origin indicates their poor importance in mix design. However this doesn't imply neglecting them. Website and storage facilities are influencing factors with low importance. As can be seen three components namely quality, health standard and packaging are located close to each other in affecting portion with high importance. Brand is located in the lowest part of negative portion as the most influenced component. Since some components have side components the graph can be plotted more sophisticatedly.

Internal relationship matrix along with other data of the ANP questionnaire was entered in to super matrix and converged after normalization. The matrix was converged in the 11^{th} power and rate of main and sub components of the mix were obtained. It should be mentioned that internal relationship matrix of all main and sub components should be calculated, the results of which were not cited here to avoid prolongation of the content. Rating information is presented in table 3.

Table3. final rating of main and sub components

Criteria	Weight	Rank

Quality	Criteria	Weight	Rank	0.2472	1
	Healthy tissue without apparent defect	0.3789	1		
	Lack of external pollutants such as sand, grit,	0.3165	2		
	Raisin color	0.2335	3		
	Raisin size	0.0710	4		
Packaging	Criteria	Weight	Rank	0.1887	2
	Protective function of package	0.5960	1		
	Information on the package	0.3264	2		
	Advertising function of package	0.0775	3		
Brand				0.1817	3
Properties	Criteria	Weight	Rank	0.1267	4
	Organic nature of raisin	0.8611	1		
	High sugar content of raisin	0.1389	2		
Health standaard				0.1056	5
Storage facilities				0.0538	6
Price				0.0434	7
Sale progress	Criteria	Weight	Rank	0.0264	8
	Business meeting (with merchants of target	0.5836	1		
	Fairs	0.4164	2		
Variation				0.0141	9
Website	Criteria	Weight	Rank	0.0124	10
	Covering foreign languages such as Arabic	0.3377	1		
	Website contents	0.2749	2		
	Quick response to users' queries	0.2389	3		
	Website appearance	0.0988	4		
	Simplicity and attractiveness of website name	0.0498	5		

6. Discussion & Conclusion

2. The investigation was conducted to find the answers for three major questions. The firs question concerns with identification of marketing mix components. As can be seen, 32 primary components or characteristics were asked from respondents via questionnaire and using a hypothesis test, 21 sub components in the form of 10 total components were screened. The applied tool had good reliability. Since the respondents were experts of exporting enterprises it can be said that it was fairly authenticated.

3. The second question was about relationships and the pattern of influencing and being influenced or in other words, is the severity of the relationship is identifiable? How is the weight and rate of the components? Is there a relation between outputs of the two analyses in designing export mix?

4. Since confirming the relationship among factors influencing on formation of a phenomenon has great importance, the second question was about identification of relationships and pattern of influence of the components on each other or the severity of the relationship. To answer this question, DEMATEL method was used. In addition to presenting the relationships among the components, this method revealed further important results. The most important component is price. Current status of exporters and raisin export mode as processed without suitable packaging has resulted in price drop and competition among the exporters so that not addressing the problem will result in exit of more producers from the market. This is confirmed by the results reported by Amiri and cheshmi (2012). In other words, such a result denotes a kind of industrial failure demanding governmental and political individuals. Results obtained by Mehrabadi Boshrabadi (2012) and Jolayi (2011) also confirm this observation. Moreover, results of DEMATEL method shows that all the components affect the brand either directly or indirectly. As a result, the output of performing all the policies will promote the brand position.

5. After the relations among the components are confirmed by DEMATEL method, network analysis can be used for determining weight and importance of the main and sub components. According to this method, priority of the main components is quality (25%), packaging (19%), brand (18%), properties (13%), health standards (1%), storage (0.05%), price (0.04%), sale progress (0.03%), variation (0.02%) and website (0.01). obviously, these results are different from those obtained by DEMATEL method. Here, according to experts, quality, packaging, brand and product properties have high rate; while in DEMATEL method the success cause of an export mix is to solve the problems related to product price in global markets. This indicates that low competitive power of producers and exporters results in lack of attention or investment on the components related to quality and product properties.

In the final question, relation mode between the results of the two analyses was considered. It can be said that raisin export companies should pay attention to priority or weight of the components in network analysis in design and performing of the mix and also consider cause-effect relations to enhance the effectiveness of the investment and attempts. Output of network analysis is weights of important factors in achieving market contribution and the result of DEMATEL method is to consider cause-effect relations that shows concentration and improvement beginning points.

7. Suggestions

A large body of investigations on topics such as relative advantage and raisin export and even the issue of vertical incorporation in this industry to prevent price competition among the exporters show the importance of this product in exporting activities of Iran. We tried to investigate another aspect of the problem with a practical vision. The investigation was conducted to, with an industrial analysis, identify and rate the main and sub components of export raisin marketing mix in Qazvin province as the second producer of the product in Iran. The relationship among the components was also evaluated in this study. Special attention was paid to influence of the components on each other. This was the first investigation conducted in Iran in this field. According to their rates, the main components of marketing included quality, packaging, brand, properties, health standards, storage facilities, low price compared to competitors, sale progress, variation and website. By comparing the weights of the first five factors to those of the remaining components and observing significant difference, it can be concluded that there is considerable difference between the two groups. So it is necessary that raisin exporters in Qazvin concentrate on quality, packaging, brand, properties and health standards. Moreover, analysis of the interactions showed that price was the most influencing factor and brand was the factor most being influenced. According to the results, some practical suggestions are proposed.

Results obtained in this investigation revealed that price was the factor with the highest influence and quality had the highest priority in export mix design based on comments provided by experts and exporters. Moreover, export brand of our country is affected by interaction of the factors and has a great importance. Since the most urgent issue for continuing raisin export is the price whose problem solving is partly mediated by policy makers and governmental persons, these items are suggested:

- Iran raisin is the cheapest raisin in the world. Only a small part of the export is devoted to developed countries (sensitive to quality). So the governmental officials should try to direct the raisin to developed countries and thereby increase its price.

- a comprehensive study should be carried out on raisin production in Qazvin and interaction of different parts of production chain to identify the interaction and convergence of these practices to achieve a good exporting mix especially for quality and price competition.

- since easy of entry to industry has resulted in enhancement of the competitive price and ignoring consensus standard and drop of Iran raisin place in global market, it is necessary for officials to indirectly increase the cost of entry to the industry via exploiting the power of trade associations and self-discipline unions.

- Investigational suggestions

- According to the results obtained in this study, these items are proposed for future investigations:

- comparative study on the levels of technology related to quality of processing with emphasis on quality factor and applying international standards in raisin export companies of Qazvin.

- study on the relationship between the type and level of affordable integrations and their influence on export mix.

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