

Ranking the most effective marketing mix elements on the sales of Javid Darb company products: an AHP technique

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Abstract. The purpose of this study is to rank the most important and effective marketing mix elements in the sales of Javid Darb Company's product in the West Azerbaijan Province of Iran. Considering this issue, the Analytical Hierarchy Process (AHP) has been used as the evaluating method. Two questionnaires have been used in this study. The first one was designed with 26 questions to identify the most effective elements of marketing mix in the sale of the door industry. The research population consisted of 50 participants, who were all active as CEOs of the companies in the West Azerbaijan Province of Iran. The second questionnaire, based on the results of the first questionnaire, was designed for ranking of effective elements. The Population of this questionnaire is consisted of 54 CEO's, Experts and Staff who were representatives of Javid Darb Company. Data was analyzed by SPSS software and reliability of questioner was determined by Cronbach's Alpha Coefficient. The Coefficient value was 0.86, showing high reliability of the first questionnaire. Using paired comparison and analyzing them by Expert Choice, the final weight of each element of the marketing mix was determined and thus the final obtained weights were ranked accordingly. The results showed that the first four effective elements in order of priority were product, price, promotion and place.

Received:
March, 2015
1st Revision:
May, 2015
Accepted:
July, 2015

DOI:
10.14254/2071-
8330.2015/8-2/14

Key words: Marketing Mix, Ranking, Analytical Hierarchy Process (AHP), Javid Darb Company, Products

Jel Classification: L11, M31

INTRODUCTION

Marketing mix is one of the major categories related to decisions and assessments of a firm's marketing, because the marketing mix or marketing strategy is a combination of elements necessary to plan and implement the entire marketing campaign. On the other hand, selecting one of the choices may affect the activity of the others, and if the components of marketing mix are effectively combined with each other, the consumer needs, environmental forces, and coordination of their entire target market selection will lead to creation of a successful marketing system. Since AHP technique has the ability to meet multiple criteria decision issues, providing a method for measuring the criteria and a method based on priorities, it allows managers to make more effective decisions on complex issues by adopting a clear-cut process in the decision-making itself. Another advantage of AHP is that not only it enables consideration of qualitative and quantitative criteria effective on marketing mix, but also it helps us to estimate, predict, and evaluate the marketing mix for managers, leading to selection of a strategic approach for companies' marketing mix.

On the other hand, one of the Iranian economic challenges is dependency on oil revenues and low levels of non-oil commodities' exports. The door industry has a great potential in West Azerbaijan province, so that for example the Atar Darb Co. and Afra Darb Co. in Salmas city, are the pioneers of manufacturing anti-theft and anti-fire doors which could also establish MDF and HDF doors production in the province. Thus, hopefully the industry is able to grow and strengthen as well as help raising employment levels and booming domestic markets. It would finally be able to reach competitiveness in the global arena and play a more effective role in non-oil commodity exports of the country. In order to achieve this goal, the role of marketing must be considered. Then marketing, due to its critical role, cannot be regarded as a separate task or work.

Javid Darb Co. was founded in 1993 in an area of 13 hectares to initiate different industrial and production firms in Salmas city, West Azerbaijan. This company along with its complete development was directed to utilize modern technology and technics to produce anti-fire, HDF, and MDF doors. This company is currently trying to increase its share in the market by producing the doors of high quality.

So, making decision about relative priority of each marketing mix or marketing system elements confirms that in addition to satisfying the needs of target market, organizational goals and marketing institute must also be taken into account. Having the knowledge of ranking marketing mix, the door standing firm is to prioritize their schedule and budgets based on these elements and improve its performance in the market environment by employing an integrated marketing system. Thus the company's management seeks to answer these questions:

1. In what order should it be marketing mix elements that they have good results in sale of Javid Darb Co.?
2. Which of the marketing mix elements have greater influence on sale of Javid Darb Co.?
3. And how are their priorities?

Considering the importance of marketing mix elements of the company, the process of globalization, general orientation of companies and organizations toward the open economy and increased competition, using appropriate and excellent model for marketing of Javid Darb products will help the door industries of West Azerbaijan province. This leads company to reach the maximum benefit of applying marketing principles and techniques, and increase the total number of exchanges or the value obtained from each transaction.

DOMESTIC LITERATURE REVIEW

Gholipour Soleimani (2009) in a study entitled as prioritizing factors affecting the marketing of hotel industry by AHP technique, prioritized the eight elements of the marketing mix as Price, product, place,

promotion, process, physical evidence, people and productivity. Based on this research, the “price” among the marketing mix hospitality, got the highest priority in customer satisfaction. After price, people, product, promotion, place, process, physical evidence and efficiency came as secondary priorities.

Chitsazian et al¹ (2010) in a study entitled design and rating of internal marketing mix elements of Iran’s Carpet, rated the five key elements of the product as price, promotion, historical and artistic authenticity. To determine the importance of each indicator, the sign test and the Friedman test are used to rank each of the indicators. The results showed that the combined factors of importance are: originality, artistic, historical, promotion and advertising, product, price and place.

Mameghani et al² (2011) in a study to identify and rank key factors influencing new product development of SAIPA Automobile Group Co. engaged in the AHP approach. The results showed that the factors associated with special privileges in product marketing, product development and team management index job incentives. Managing IT with index matching technology, the commercialization of new products ,and paying attention to customer needs with the flexibility are known as important factors in the process of NDP (New Product Development), and have possessed the most importance.

Alipour et al. (2012) did a research aiming at ranking and classifying the marketing mix elements that affect on behaviors of industrial electrical heaters consumers in Kaveh industrial city to increase the sales of manufacturers of electrical heaters. The statistical population was the companies of Kaveh industrial city. In the research design, after describing the research importance and setting the goals, four hypothesizes are examined that their variables are price, production, promotion (improvement) and distribution. Hypothesizes are confirmed and supported by using test t and factors influence on consumers’ behaviors for buying electrical heaters are classified by Freedman’s test. They found that producers in addition to deliver high quality goods to consumers should have a powerful distribution system to attract and maintain more customers. Other factors of marketing mix affect on consumers’ behaviors are price and promotion in the next classification of efficacy, respectively.

Shekofteh et al³ (2012) in a study tried to identify and rank the marketing mix factors that influence the consumer buying decisions in buying Iranian tea (case study: city of Bojnord). Data Analysis was done Using SPSS, by Wilcoxon test and Friedman ranking. The results of this study show that the presence of “national standard mark” on the packaging has the most influence and advertising has the least influence on consumers’ buying decision.

Mahdavi et al⁴ (2013) in a study tried to rank the marketing mix in tourism of Iranian pilgrims (Case Study: Mashhad). In this study, the AHP method was used. The result was that the price initiatives, people, tourism, promotion, place had the highest priority in turn.

INTERNATIONAL LITERATURE REVIEW

Yoo et al⁵ (2000) in his study of customers’ perception of the marketing mix stated that according to the traditional marketing mix, price, store image, distribution, advertising costs, and preferences of the customers’ perception are being stated as consumer perception elements of marketing mix. Price is proposed as an

¹ Chitsazian, Amir Hossein & Chitsazian, Ali Reza.

² Mameghani, Ali Reza & Sarmad Saedi, Soheil & Kabaranzad, Mohammad Reza.

³ Shekofteh, Mahdi & Niknam, Manuchehr.

⁴ Mahdavi, Iraj & Zarif, Faezeh.

⁵ Yoo , Donthu & Lee

indicator of the quality or usefulness of products. Picture of the store is an important external indicator for the customers in the perception of product quality.

Salomon and Montevechi (2001) presented a compilation of comparisons on the analytic hierarchy process and others multiple criteria decision making methods, using some cases developed in Brazil. None of the works presented in their study has concluded that the AHP as an inferior MCDM method. By the opposite, the results gotten for the different methods, in the most of cases, may be considered similar. Several advantages of the application of the AHP have been observed in all the cases. They also concluded that if there will be time to take the decision, if there will be no more than nine alternatives, and if these alternatives and the criteria of decision were totally independent, the use of the AHP would be an excellent, or maybe, the optimum solution.

Kim and Hyun (2010) in a study investigated the evaluation of the effectiveness of the marketing mix and company image in three dimensions of brand and name value as: brand awareness and association, perceived quality and loyalty for the brand. In this study, changing the company's image as a variable moderating the effects of marketing mix on brand value is adjusted. The results of this study showed that the performance of the marketing mix is positively related to the value of brand and company image modifies marketing mixed effects on all three components of the brand value.

Sukran Seker and Mesut Ozgurler (2012) conducted a research on analyzing Consumer Electronics Firm by using the SWOT-AHP in Turkey. In this study, the issue was classified hierarchically in three levels. The front surface consisted of the target, the second level included SWOT factors (strengths, weaknesses, opportunities and threats) and the third level was the strategy of choice, and with respect to the first and second levels of the hierarchy tree intended strategies were rated.

Maheswari⁶ et al (2014) investigated the impacts of marketing mix on the consumer experience in fast food industries. The data was collected from 120 respondents in Coimbatore City. Percentage analysis, weighted average rank analysis and Chi-square test used for analyzing primary data to find the relation between various marketing mix elements. Co-relation coefficient was used to find the relationship between various elements. Based on the analysis, some suggestions and recommendations were given.

PURPOSE OF THE STUDY

The main objective of the present study is to investigate whether ranking of marketing mix elements is effective on Javid Darb company's sales or not. To fulfill this objective, the following secondary objectives are:

1. Ranking the price mix elements in Javid Darb Company;
2. Ranking the product mix Javid Darb Company;
3. Ranking the promotion mix in Javid Darb Company;
4. Ranking the distribution mix of Javid Darb Company.

RESEARCH METHODOLOGY

The aim of the present study is practical and the approach is descriptive. In fact it has been tried to describe in explanatory research format. The population of this research is the sales manager and CEO and

production manager of Javid Darb Co. And its dealers (of 47 dealers in the country and in Iraqi Kurdistan) and CEO's of rival companies in West Azerbaijan province (a number of 50 door producer) as well as professionals who have used the census rather than sampling. Data collection was performed by using two questionnaires. The first questionnaire was developed aiming to identify the most effective marketing mix in the door industry with 26 questions in that the participants were asked to score the items in questionnaire in terms of their impact from one to ten (score 1 as the presenter of the least important and the 10 as the most important have been indicated). These results are presented in table 1.

Table 1

Arithmetic means of scores related to each parameter affecting door industry's sales

	parameter	arithmetic mean
1	installment sales	6.36
2	consistency of price and quality	7.54
3	Discounts	6.06
4	credit facilities for consumers	4.02
5	product appearance and beauty	6.48
6	diversity of size and dimensions	6.12
7	color diversity	6.20
8	design diversity	6.42
9	Quality	7.32
10	design novelty	6.16
11	low cost of installation	3.38
12	consumers allowance to substitute purchased goods	3.18
13	consumers allowance to change their orders	3.88
14	Brand	3.48
15	proper packaging	2.80
16	seller's attitude	6.72
17	seller's advice	7.08
18	advertising in journals	4.72
19	Exhibitions	5.18
20	promotional gifts	6.62
21	advertising in medias	4.98
22	on time delivery	6.58
23	Inventory	4.48
24	selling place	6.20
25	geographical coverage of goods	4.48
26	Transportation	3.70

Reference: author's calculations

The second questionnaire, based on the results of the first questionnaire and in order to prioritize the most important elements affecting the sales of Javid Darb Company was designed, and this was on the basis of AHP methodology on Paired Comparisons. Validity and reliability of the questionnaire were confirmed by professors and professionals, also to determine the reliability of the questionnaire the SPSS software and Cronbach's alpha was used, which the coefficient equals to 0.86 that owns a high reliability.

Table 2

Reliability of the questionnaire

Cronbach's Alpha	N of Items
.861	26

Reference: author's calculations

As stated before, for prioritizing marketing mix hierarchical analysis method is used.

Since AHP technique has the ability to meet multiple criteria decision issues, providing a method for measuring the criteria and a method based on priorities, it allows managers to make more effective decisions on complex issues by adopting a clear-cut process in the decision-making itself. Another advantage of AHP is that not only it enables consideration of qualitative and quantitative criteria effective on marketing mix, but also it helps us estimate, predict, and evaluate the marketing mix for managers, leading to selection of a strategic approach for companies' marketing mix. We preferred the AHP method rather than other multi criteria methods due to its flexibility, intuitive appeal to the decision makers and its ability to check inconsistencies. Generally, users find the pair wise comparison form of data input straightforward and convenient. Additionally, the AHP method has the distinct advantage that it decomposes a decision problem into its constituent parts and builds hierarchies of criteria. Here, the importance of each element (criterion) becomes clear. AHP helps to capture both subjective and objective evaluation measures. While providing a useful mechanism for checking the consistency of the evaluation measures and alternatives, AHP reduces bias in decision making. The AHP method supports group decision-making through consensus by calculating the geometric mean of the individual pair wise comparisons. AHP is uniquely positioned to help model situations of uncertainty and risk since it is capable of deriving scales where measures ordinarily do not exist.

This method has 4 basic steps: 1. Modeling and drawing hierarchical tree. 2. Data collection and paired comparisons matrix. 3. Calculation of relative weight and 4. Calculate the final weight.

Depicting hierarchical decision tree: hierarchical decision tree has three levels of hierarchy which are goals, indexes, and alternatives, and its index level is dividable into several sub-components.

Goal: The main research question or problem which we intended to solve is called the goal, the highest level of the hierarchical tree. The present study aims to identify and rank the most important elements of the marketing mix affect the company's sales in the Javid Darb Company.

Indicators: is the second level of the hierarchical tree, after the goal. The indicators are divided into sub-indices and sub-indices are further divided into sub-criteria. In this study, there are four parameters and four marketing mix i.e. price, product, promotion and place. According to the results of the first questionnaire, the sub-indicators were 15, after calculating the arithmetic mean of the criteria, indicators that their mean were over 6 were determined to be used in the hierarchy tree (due to limiting factors, the paired comparisons are carried out). The indexes of the research, utilizing other studies and comments of supervisors, have been classified in 4p format in the table 3.

Table 3

Parameters affecting the sales of industry of doors production

Installment sales		Price
Relevance of the price and product quality		
Discounts		
Plan variety	Appearance and the Beauty	Product
Color variety		
Size and dimensions variety		
Format innovation		
Quality		Promotion
Providing promotional gifts		
Appropriate vender	Seller role	
Seller advice		
On time delivery		Place
Place of supply		

Reference: author's calculations

Alternatives: The alternatives being compared in this study are the Javid Darb products including MDF, HDF and Anti fire doors. Hierarchy tree is shown in figure 1.

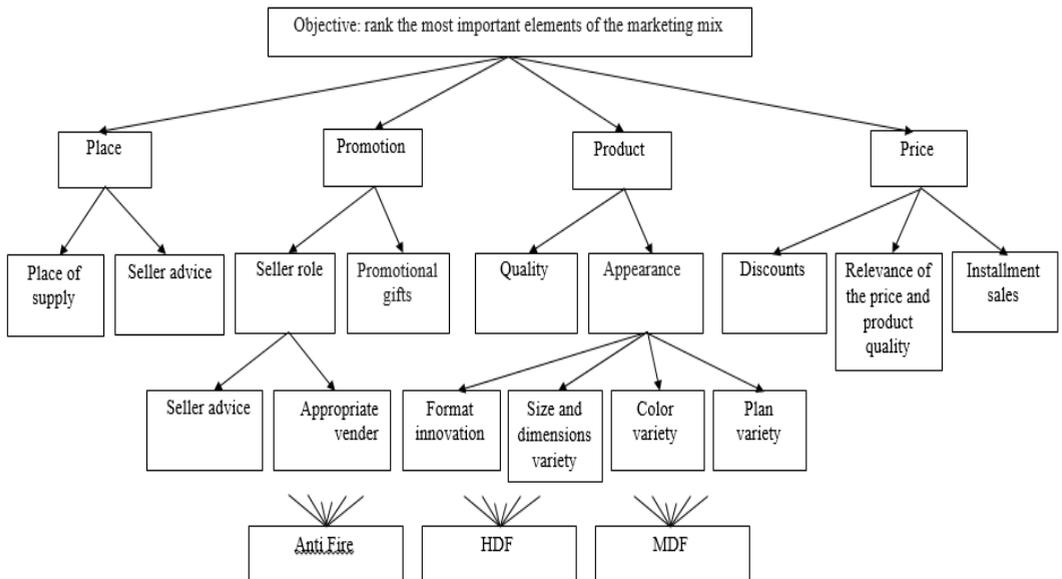


Figure 1: Hierarchy tree

RESEARCH HYPOTHESIS

1. In the product sales of Javid Darb Company, on the price mix, discount has the first priority;
2. In the product sales of Javid Darb Company, on the product mix, quality has the first priority;
3. In the product sales of Javid Darb Company, on the promoted mix, the sellers role has the first priority;
4. In the product sales of Javid Darb Company, on the distribution mix, on-time delivery has the first priority.

DATA ANALYSIS

Setting priorities using paired comparisons: after drawing a hierarchy tree of decision-making, a questionnaire of paired comparisons was designed and distributed between representative agencies of Javid Darb company (47 people) and experts (7 people). The questionnaire was to prioritize and extract the pairwise judgments of experts and does not need to test validity and reliability. The data from the questionnaires were analyzed using Expert Choice software. Since the data analysis is based on hierarchy analytic process, first inconsistency of the respondents paired comparisons was controlled and ensuring an acceptable inconsistency rate (less than 0.1) matrix of paired comparisons were extracted and the weight of each element of the hierarchy tree was found. Results shown in table 4 provide a clear overview of final weights related to marketing mix elements and their criteria and sub-criteria in hierarchy tree.

Table 4

Local and global weights related to all criteria, sub criteria and sub-sub criteria

Criteria	Local weight	Sub criteria	Local weight	Sub-sub criteria	Local weight	Global weight
Price	0.230	Installment sales	0.164	NA	NA	0.038
		Relevance of the price and product quality	0.492	NA	NA	0.113
		Discounts	0.344	NA	NA	0.079
Product	0.443	Appearance and Beauty	0.337	Plan variety	0.366	0.054
				Color variety	0.200	0.030
				Size and dimensions variety	0.183	0.027
				Format innovation	0.250	0.037
		Quality	0.663	NA	NA	0.294
Promotion	0.169	Providing promotional gifts	0.317	NA	NA	0.053
		Seller role	0.683	Appropriate vender	0.604	0.070
				Seller advice	0.396	0.046
Place	0.158	On time delivery	0.625	NA	NA	0.099
		Place of supply	0.375	NA	NA	0.059

Reference: author's calculations

On the products of the company (options of hierarchy tree), MDF doors with a final weight of 0.422 as the first, Anti fire doors with a final weight of 0.292 second and HDF doors with the final weigh of 0.286 obtained the third position which the statistics of company's sales also is an indicator of this.

RESEARCH HYPOTHESES TEST

On the price, as shown in table 4, the final weight of price balance with the quality of goods is 0.492 which is located in the first rank. Thus, the first research hypothesis is rejected.

On the product, the final weight of good quality is 0.663 and is located in the first rank and second research hypothesis is confirmed.

On the promotion, the final weight of seller role equals 0.683 and is located in first rank and third research hypothesis is confirmed.

On the Place, the final weight of delivery equals 0.625 and is located in the first rank and the fourth research hypothesis is confirmed.

CONCLUSION

One of the major challenges of marketing managers is to choose a dynamic and appropriate marketing mix because it is the foundation for all marketing activities. In this study, it has been tried initially to identify components of the marketing mix elements using the library researches and then during a field study be investigated and rated. Javid Darb Company considering its aims, in the field of its products should focus its attention on the quality of the doors and pay a second attention to the variety and of newness of designs. In terms of pricing, the relevance between quality and prices has the first priority and then they may consider the types of discounts. In terms of promotion mix, the role of the salesperson is highlighted and the company must consider the highest care and effort in granting and selection of outlets and branches. In terms of distribution, also it must try to have on time delivery of incoming orders in order to avoid any damage to the reputation of the company in the market environment.

According to the results of the study, ranking of the most important elements of the marketing mix is as follow:

Quality of goods (0.2937); The relevance between price and quality (0.1137); On time delivery (0.0988); Discounts (0.0791); Proper manner of salesperson (0.0697); Proper place for goods supply (0.0592); Design variety (0.0546); Providing promotional gifts (0.0536); Salesperson advice (0.0457); Installment of sales (0.0377); Newness of designs (0.0373); Color variety (0.0299); Size variety (0.0273).

Considering the fact that identification of the marketing mix elements in each industry, by identifying the priorities, helps the planning and allocating funds, it can be suggested for all industries and business' to take steps to start a business environment by identifying these factors. Although methods other than AHP can be used in prioritization and specifying the elements of the marketing mix, we preferred the AHP method due to its flexibility, intuitive appeal to the decision makers and its ability to check inconsistencies.

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