Review of Marketing Margin of Tomato in Bushehr Province

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ABSTRACT

In this study, marketing of tomato was reviewed in the Bushehr province as one of the most important productive regions of tomato in winter. Marketing services reviewed in Bushehr province and the rates of marketing margin, share of marketing factors in marketing margin, coefficient of marketing expense and marketing efficiency were calculated. Function of marketing margin was estimated by using the models of surcharge, relative margin and marketing cost. Required data and information for doing this study have been gathered in the form of documents, from statistical and survey resources through simple random sampling method and by filling out 120 questionnaires (including 5 kinds of questionnaire) associated with the 2013-14 crop year. According to the results of this research, the most important marketing services are harvesting, transportation, packaging, storage, conversion, sorting and standardization of tomato. The results of the present study showed that the highest rate of marketing cost is related to conversion path with 12050 Rials and the highest rate of marketing margin is associated with the path of number 3 with 28000 Rials. Also, share of the producer of the price of the final product in the conversion path is the minimum rate, about 16 percent, and also the conversion path has the maximum of technical efficiency (0.99) and total efficiency (0.41), while it has average price efficiency (0.52). In the fresh usage path, as the length of the marketing decreases, the price, technical and total efficiency respectively decreases, increases and decreases. Finally, the results of the evaluation of marketing cost functions showed that marketing margin of tomato has a direct and significant relationship with retail prices, and it has a negative and significant relationship with marketing cost. At the end, some recommendations have been stated for solving the existing issues.

INTRODUCTION

The issue of reviewing market has grabbed the attention of the experts of the matter for a long time. In this respect, most of the researchers have done qualitative researches and they have usually considered only the producers and in other words, they have attempted to estimate the function of supply and demand individually and according to it, they have determined the price conflicts of the factors and they also reviewed the rate of effectiveness of each of the groups (including consumer and producer) of market prices. Sometimes, they estimated both of the above functions systematically and the researches of the impacts of effective factors and policies on the producers and consumers were included and through some solutions which have also been presented in order to improve the market and its organization. But the reality is that this action is the most important section of the market which is significant between producers and they have been mentioned, ignored and neglected as the marketing margin; whereas, by reviewing this section of market we can balance many of the recommended solutions and present newer attempts. In today's marketing in the business literature of the world means all of the efforts which is tolerated by an economic entrepreneur for designing, producing and distributing or selling goods or serving the final consumer and satisfying them [2].

Marketing is a basic tool which can be done desirably through proper distribution of productions, therefore the nature of marketing structure in the matter of transferring production from land to the hands of the consumer determines the fact that the rate which is added to the price in the farm so that it would convert to retail price. Reviewing the marketing of agricultural products has a long history in the texts of agricultural economy and marketing. Marketing processes and operations of agricultural products have become more significant more than...
ever with the development of urbanization and consumption centers' going further from the production areas in such way that the UN organization has considered the marketing of agricultural products among the effective factors on the development of countries and has demanded the governments to pay more attention to this important issue in the area of agricultural economy [14].

In the process of development of urbanization in the past decades and the passage of agriculture from traditional mode to the modern and commercial stage, the marketing issue has gained additional importance. Market of agricultural products has considerable fluctuations in the industry section due to the presence of particular specifications and features compared to productive productions. Seasonality, bulkiness and being corrosive, depending on climatic conditions and also being regional of production are among these features. On the other hand, the role of agricultural products is crucially important in food security and providing food supplies of various classes of society and fluctuations in the supply and demand of these products lead to some changes in price and threats for producing products and food security of society and in some cases they lead to crisis. Nowadays, one of the main income challenges of farmers is the way productive productions are supplied to the consumption market and the fact that their received share is lower than the price which is paid by the final consumers. Most farmers believe this is due to the existing defects in the structure of the market of agricultural products [14].

Kupahi [12] states that the difference of the farm prices and retail prices of agricultural products, which lead to the increase of their marketing margins, also exists in developed countries; in such way that about 50% of the price paid by the consumer for each unit of product forms marketing prices, but in developed countries, the price difference is mostly associated with marketing services such as packaging, sorting, conversion and hotel delivery; whereas, in the developing countries (like Iran), little marketing services are done about the product. Among the important factors of the fact that marketing margins are high in Iran, is the existence of large wastes and market mediums. These factors have the role of determiners of prices to some extent due to the fact that market mechanism (such as shortage of goods stock and information system, shortage of cash and farmer's financial ability being low) by controlling the creation of a kind of intangible monopoly and they achieve great interests due to this. Of course, some of these issues are due to the special nature of agricultural products which have different marketing from the marketing of industrial products. Being corrosive, presence of so much water in their buildings and large volume, limited time of production and various consumers are among these characteristics. Each of the mentioned characteristics create various issues and not paying attention to any of them can lead increase the marketing margin and costs and therefore inefficiency of a marketing system.

In the definitions which have been provided for agricultural products, there are two views. The first view includes those definitions which believe the marketing of agricultural products is all of the done operations on the product since the time of production to consumption. The second view includes the definitions which consider the marketing of agricultural products in a wider concept than the first view; in such way that in this view, the marketing of agricultural products starts from the stage of programming for production, because in selecting the rate, type and quality of the production of the product, considering the market and demand of the consumer is necessary. In this regard, Najafi [15] believes that although we can't consider marketing to be equal to production, but there is no doubt that studying marketing since the time of taking out the product from the farm is late and we can consider the interactions of production and marketing to be due to the producer's carelessness in choosing the type of the demanded product or even improper selection of the size of the productive unit.

Operations and processes which are applied to the agricultural products during the path of marketing so that it would be delivered to the consumer from the producer include storing, transportation, packaging and so on. Doing these activities lead to the creation of added value on these products and therefore, price difference between the price received by the producer and the price paid by the consumer. This gap of price is called marketing margin. Enhancement of marketing margin leads to the lack of satisfaction of the producers and consumers, because in one hand, the price paid by the consumer increases and on the other hand, a little share of this paid price belongs to the producers as well. Therefore, by reviewing the marketing margin we can study the factors which affect it and by balancing them we can reduce these lacks of satisfactions.

One of the issues which is always prominent in the marketing of agricultural products in countries which are less developed including Iran is the price difference of the producer which is the difference between the price received by the producer and the price paid by the consumer. Of course we shouldn't think that this difference only exists in the developing countries, but there is also such difference in the developed countries. But in the recent decades, this price difference has been mostly associated with services such as packaging, sorting and conversion of the product; whereas in the less developed countries, little services are supplied for the product. One of the factors which have been considered effective on this price difference is the medium factor which is called the dealer and dominator. This medium factor has the role of price determiner to some extent by controlling the market and creating a kind of monopoly and in this way he achieves great interest [19].

In Iran, tomato takes on a wide range of agriculture. Bushehr province is one of the main regions of cultivation of this product especially in winter. Tomato is among those crops which are common both freshly
and also in various processed forms. In our country, by considering the economic significance and high value of this product and proper climates, its production is possible in all of the various seasons and areas of the country so much that production of this product is recognized as a strategic and basic production in some of the provinces of the country. By considering the fact that Bushehr province is considered as one of the important centers in the tomato production of the country and in the crop year 2011-12 about 9.5% of the cultivation surface of tomato in the country has been in Bushehr, this province is significant in the country in this regard. Also this province is in the second rank in the country in terms of production with the allocation of 12.9 percent of the total rate of the country's production after Fars province. Also, it seems that by considering this point that Bushehr province is considered as the hot areas and it is considered to have the potential to produce tomato crop in cold seasons. So to some extents it can respond to the demand for this product in cold seasons. By considering the above items, in this research, the marketing margin of tomato in Bushehr province will be studied.

a) Studies:
Sadra Shrafi and Kazemnejad [19] economically analyzed the market margin of the rice crop by using the econometric models. The results of the estimation of Mark-Up models and marketing cists show that marketing margin of rice in Iran is affected by factors such as marketing and rate of imports, price of domestic or foreign rice, distribution of imported rice and price risk and the most important effective factors are the importing policies and policies which have led to some changes in the cost of transportation (as the index of marketing costs); such as policies of changes in the rate of oil products and fuel.

Hassanpour [7], through a survey research, reviewed the marketing operation and path determination, cost coefficient and the marketing efficiency of grape and also determination of the share of marketing agents in the price of grape and factors which affect margin and wastes of retail of grape in Kohlikhuye va Boyerahmad province and showed that the share of wholesalers, local buyers and dealers in purchasing grape is respectively 42.7, 29.1 and 13.7 and the cost and efficiency coefficient of marketing are respectively 42.2 and 127.3 percent. Shares of producers, wholesalers and retailers of the price of grape were respectively calculated as 57.8, 16.6 and 25.6 percent.

Hosseini [10] reviewed and compared the effective factors on the marketing margin of pasteurized and unpasteurized milk in six provinces which produced milk and concluded that the retail price in all of the studied provinces has had a positive and significant impact on marketing margin of pasteurized and unpasteurized milk and also the wage of the workforce has a positive effect on marketing margin in two official and unofficial sections.

In a study, Zare and Najafi [26] reviewed the marketing paths and effective factors on supplying water and rainfed grape in Fars province. Calculating the cost and income of the marketing factors also shows that sum of the shares of wholesalers and retailers are approximately equal to the share of producers in the retail price. According to this, we can say that due to the nature of grape's being corruptive, the bargaining power of the producers reduces at the time of selling.

Najafi [14] reviewed the performance of rural cooperatives in the field of marketing of agricultural products in Iran and the possibility of developing the marketing services of these companies. In order to do this study, he used a classified sampling method and according to this, by considering the climatic conditions, he initially chose 8 provinces and in each province, by considering the variety of productive crops and distance to the city center, he chose a sample of the rural cooperative companies. At the end, this researcher offered some recommendations in order to develop the marketing activities of product through the cooperative companies.

Hosseini et al [11] reviewed the pattern of marketing margin of meat and factors which affect it in Iran and concluded that the marketing margin of the meat of cow and sheep has a direct and significant relationship with the price of meat in the level of retail and the cost of slaughtering; in such way that 10% of enhancement in the price of beef in the retail level respectively leads to 6 and 10.8% of enhancement in the cost of slaughter and 2.3 and 5.4% of enhancement in the marketing margin of the meat of cow and sheep.

Shirvanian in 2000, in the regard of tomato marketing in Fessa city, believed that there are many problems in marketing performance and prices. Also due to the fact that the government doesn't do the necessary actions in providing the information of the markets, the groups have appeared in the marketing organization and due to the situation of the markets and prices, they have sectionally entered the system of the product marketing and take control of market and dominate it. He suggests that instead of intervening in the market affairs, the government shall supervise and attempt to prepare and publish the information associated with market in the respect of reforming the process of determining price in the wholesale market by making the producers participate in the pricing committee [20].

In the year 2008, Falahi economically evaluated the marketing paths of tomato in Marvdasht city. The results of his study show that the highest rate of marketing margin and cost (respectively 1345 and 1870 Rials) are associated with the conversion path. Also, the share of producers of the price of the final production in this path is the least rate which is a quarter. Generally, we can say that for all of the required marketing paths, the
rate of price efficiency is wonderfully lower than technical efficiency and the total efficiency of marketing has a low level [3].

The first research which has intelligently analyzed the effective factors on the marketing margin of the agricultural products is associated with Gardner. In a study, he reviewed the price margin of the land to retail in food industry in America by using the theories of the comparative market. The used patterns in this research are for doing the quantitative predictions about determining the impact of various transporting factors of the product demand function and functions of supplying the farm products and processing on marketing margin (ratio of prices, share of farmer's expense of the retail income). The results of this research showed that the conflict of ratio of prices (price of the retail level to the price of farm level), compared to the transporter factors of product demand (population), supplying farm crops (climate) and supplying market products (taxes) are respectively -0.13, -0.33 and 0.4. 0.13 conflict indicates that 10 percent change in the transporter factors of demand (population) reduces the ratio of price (retail to farm) for 1.3%. With the reduction of ratio of prices, the marketing margin will reduce and the market function will increase in such way that the paid share by the final consumer will decrease or the received share by the farmer will increase.

Halloy [8] balanced the pattern of Gardner in the conditions of imperfect competition in the market. In the pattern of Halloy, each firm has been formed with the assumption of having two farm and marketing products, but the number of firms varies from 1 (monopoly) to infinity (competitive). In the monopoly mode, a firm is responsible for the whole production of an industry. He also assumed that supplying marketing product is completely flexible but supplying farm products is inflexible. In conclusion, the marketing margin function is affected by the transporting factors of the function of product demand.

Wohlgenant and Mullen [25] reviewed the factors which affect the price of meat from farm to retail. In this study, the recommended pattern of Gardner (mark up) was compared with the pattern of relative margin in which it has been assumed that marketing margin is affected by the rate of production, expenses of marketing products and retail price. The findings of this study show that the pattern of relative margin is preferable compared to the mark up pattern. Also an enhancement in the production of marketing expenses leads to the enhancement of marketing margin.

Among other studies which compare the mark up and relative margin patterns, we can refer to the study of Famino and Luabscber [4] who confirmed that the relative margin pattern is prior to the mark up pattern. A number of researchers did their studies by using the relative margin pattern by referring to the confirmation of the matter that the relative margin pattern is prior to the mark up pattern by other researchers.

In 1992, Mundall et al in a research with the title of economic review of production and marketing of pineapple, by using the information of 150 farmers who produced pineapple, who were selected randomly, and also the data of 4 wholesalers and 3 retailers through estimating the pineapple production function, compared and calculated the return compared to the scale of production factors and reviewed the marketing problems of this product by reviewing the current situation of pineapple marketing and determining the path of its marketing.

Mahshuari [13] reviewed the components of market and their share in the wholesale business centers in India. In this review, the wholesalers were compared in terms of concentration, size of deals, range of transactions and volume of sales by using the statistical methods.

In a study, Parasad [17] introduced the four basic channels of marketing of rice and wheat crops in the Mozafarpur market in India. He divided the farmers into four groups: margin, small, medium and big. A class was considered as the mean. Then the frequency percentage of each of the groups was chosen in each marketing path by the farmer and it was calculated for each product separately. In the next step, he determined the efficiency for each group and each product and showed that operational efficiency increases by increasing the size of the farm.

Richards [18] estimated the marketing margin function of the lemon products in four regions of California and concluded that the wage rate, packaging of the food, expenses of carrying product to market, flexibilities of supply and demand and some of the virtual variables are the most important effective factors on marketing margin.


In the present research it has been attempted to review and discuss various factors which affect the marketing margin by using various models, in addition to introducing various ways of marketing tomato crop of the city Dir and evaluating and analyzing each of the mentioned ways.

Theoretical principles of research:

The research method in this study is of the survey research type. The used data and information in the present research has been related to the crop years 2013-14 sectionally which were gathered through questionnaire. This data was collected through 5 types of questionnaires (producer questionnaire, retailer questionnaire, wholesaler questionnaire, product loader questionnaire and converter questionnaire) and with simple random sampling method. Among the sum of 120 questionnaires, 50 questionnaires are associated with
the producer, 30 questionnaires with retailer, 20 questionnaires with wholesaler, 15 questionnaires with the product loader and ultimately 5 questionnaires are also associated with converter which have been selected with the method of simple random sampling. It needs to be explained that the studied region in this research is the city Dir in Bushehr province. Simple sampling method gives the same chance to all of the subcategories and then by considering the width of the required statistical population in the research and also to give an equal chance to each component of the considered population, the random sampling method has been used. In this research, the opinions of the experts of the science of economy and successful managers have been used. It shall be noted that the required data is for estimating the model of determination of marketing margin annually and for the time period of 1991 to 2012. This data has been received from the center of statistics, agricultural Jihad, and Food and Agriculture Organization (FAO). Wollen and Turner defined the marketing margin at all costs which has been created by the consumer in the current of marketing path of the product while harvesting (Wollen and Turner, 1970). But for analyzing the marketing margin better, we show the paid price in the considered market with PA and the sale price of the marketing factor before that with PB, then we will have:

$$MMA = PA - PB$$

And here MMA is the margin associated with the marketing factor A. Total marketing margin is also defined as the price difference of the producer and consumer and it is calculated from a sum of marketing margin associated with each of the marketing factors:

$$MM = RP - PP = MMA + MMB +$$

And here MM is associated with total market margin, RP retail price, PP producer price and MMB marketing margin with marketing factor B. Also the share of each of the marketing factors can also be calculated from the final price of the product by using the following equation:

Share of marketing factor A = \(\frac{PA - PB}{RP}\)*100 of the final price of production

Whenever marketing margin is stated in percent, the obtained coefficient is called the coefficient of marketing cost. This coefficient shows a sum of the shares of all marketing mediums from the final price of the product and it is shown by \(r\):

$$r = \left(\frac{RP - PP}{RP}\right) \times 100$$

Thakur (1992) believes that efficiency has the most important in marketing analysis. Interest in marketing is directly associated with its efficiency. Inefficient and backward marketing system leads to the enhancement of costs, wide damage, destruction of the products and illogical prices. High marketing efficiency increases the incomes of the producers by increasing the price of their products and producer's satisfaction by reducing the purchasing price.

Sherivastava and Ranadhir [21] presented a method for calculating the marketing efficiency. In their opinion, price difference includes two components: net margin and marketing cost. If we show the net margin with NM and marketing costs with MC (including the costs of workforce, transportation, storing, packaging, etc, with the exception of waste costs), then the following equations will be true:

$$MM = RP - PP = NM + MC$$

$$NM = MM - MC$$

In the next stage, these two researchers define inefficiency as follows by dividing total inefficiency of a marketing system to two components of price inefficiency and technical inefficiency by using the above equations:

price inefficiency: \(PI = MC / MM\) \(\rightarrow\) price efficiency: \(PE = 1 - PI\)

technical inefficiency: \(TI = CW / MM\) \(\rightarrow\) technical efficiency: \(TE = 1 - TI\)

total inefficiency: \(OI = (MC + CW) / MM\) \(\rightarrow\) total efficiency: \(OE = 1 - OI\)

In here CW is the cost of wastes.

If the sum of marketing cost and cost of wastes was equal to zero, the inefficiency will be zero and this means total efficiency of the marketing system and in fact, it shows the total competition market. If this rate was equal to impure margin, the inefficiency of the marketing system will be equal to 1 which is a sign of inefficiency of this system. Generally, the lesser the rate of inefficiency of a marketing system is, the marketing system and path will be better. Price efficiency is market's potential for an optimal recognition of resources and coordinating production and consumption. The purpose of price efficiency is optimal allocation of resources and achieving the maximum of economic product (same source).

Also, due to the presence of fluctuations in tomato price, in the level of farm market, wholesale, retail and so on, the weight mean of the price in each of the mentioned levels (the equation below) has been used [26].
\[ P_{r,w} = \frac{\sum \sum Q_{it} P_{it}}{\sum \sum Q_{it}} \quad t = 1, 2, \ldots, T \quad i = 1, 2, \ldots, N \]  
\[ (3-9) \]

In this equation, \( P_{it} \) is the price of the purchased tomato (sold) of \( i \) person in the period \( t \) and \( Q_{it} \) is the rate of purchased tomato (sold) of the person \( i \) in the period \( t \) and \( P_{r,w} \) is the average price (weight mean of price) in various levels of market.

**Determinative factors of the rate of market margin:**

In order to determine the effective factors on marketing margin, various patterns are used. Here we will refer to three main patterns including models of surcharge, relative margin and marketin cost which have the most usage in the researches.

**Relative margin pattern:**

Relative margin pattern was first mentioned by Wohlgenant and Mullen [24]. The relative margin pattern is obtained from a function of diverse demand for a processed agricultural product and in it, the marketing margin is a function of the retail price, rate of goods (value of the sold goods) and price of marketing factors which is defined as follows.

\[ MM = f(RP, TR, Z) \]  
\[ (3-10) \]

According to this equation, \( MM \) is the marketing margin, \( RP \) in the retail price, \( TR \) is the value of the sold goods and \( Z \) is also the marketing costs.

**Surcharge pattern:**

Surcharge (mark up) pattern was firstly introduced by Waff (1964). This pattern is based on this assumption that consumers’ demand is an effective factor in determining the farm prices and retail. In this pattern the marketing margin is a function of retail price and marketing costs:

\[ MM = f(RP, Z) \]  
\[ (3-11) \]

According to this equation, \( MM \) is the marketing margin, \( RP \) in the retail price, and \( Z \) is also the marketing costs.

**Patterns of marketing cost:**

Pattern of marketing cost was also mentioned by Wohlgenant and Mullen [24]. In this pattern, it has been assumed that competitive conditions and economic firm offer marketing services to some extent that the final cost of service will be equal to its final income [14]. This pattern is a function of goods rate (rate of sales) and marketing cost. Therefore, in this pattern the marketing margin is expressed as the following equation:

\[ MM = f(Q, Z) \]  
\[ (3-12) \]

In which \( Q \) is the rate of supplied product in the farm and \( Z \) is the marketing cost.

In order to review the stagnation of variables a multi-stage method and the Eviews software package have been used.

**RESULTS AND DISCUSSIONS**

**Marketing operations:**

Studying marketing activities requires a frame work. One of the most effective frameworks of studying marketing is practical approach which divides marketing activities into three categories: exchanging, physical and facilitative. Exchanging activities include buying and selling and physical activities and storing include conversion and transportation. Also the facilitative activities include items such as sorting, standard and packaging.

Harvesting crops in the region are done traditionally and manually. It is worth noting that in some cases in which the rate of crops is low, harvesting it is done by the farmers and families and in other cases in which the rate of product is considerable or when the farmers and their families are not able to do the job for any reason, it is done by a daily-paid worker. Cost of the workforce for harvesting and gathering the crops varies. This cost depends on the number of harvesting chins, number of requires workers for each stage, wage of each worker and their gender. Number of harvesting crops varies between 3 or 5 chins and the crops are harvested in 4 stages averagely.
In the studied region, tomato's packaging is done by considering the knowledge of the farmers in plastic boxes. The location for packaging the tomato crop is at the farm which is done inside 18 to 20kg boxes and by the farmers and their families or by the hired workers who have more experience and history for harvesting and collecting crops. Among the common problems in the matter of packaging in the studied region, we can generally mention expensiveness and high prices for empty boxes and also their low qualities.

Storage rooms are one of the factors of balancing the rate of supply based on market's need. By considering the fact that tomato can be corrupted, this crop needs storage rooms with the system of controlling environmental conditions (heat degree, relative moisture, light and etc). in the city Dir, there is not proper storage room for keeping tomato in any of the marketing sections (at the farm, wholesale, retail and conversion). Due to the hotness of the region's weather and the fact that tomato is corruptive, after harvesting it, they shall be carried to the sale markets quickly and storing in its complete and true meaning does not exist in any of the marketing stages.

Transportation is one of the most fundamental marketing activities and the cost of this activity is considered as the most prominent marketing costs. In the studied region, in order to transport the harvested crop from the land to the city center or cities nearby, a truck was used and for long distant and sending to Tehran, Isfahan, Hamedan and so on, vehicles such as Isuzu were used.

Converting tomato in the studied region is done traditionally and industrially. In the traditional method, the families buy the crop in the harvesting season and attempt to prepare tomato sauce and ketchup in their houses. But in terms of conversion with the industrial method, until today, due to the lack of tomato conversion factories throughout the city Dir and generally Bushehr province, the farmers are forced to sell their crops with low prices through mediums or the factory owners of the city Kazerun.

Since harvesting tomato is mostly farmers' responsibility, sorting the crop is also done by this group. By considering the fact that the volume of the harvested crop is large at the farm, and also by considering the sorting cost, usually this activity is not embraced by the farmers and crop gets sent for consumptions inside the city without being sorted. But if the tomato was exported to outside of the city, then the sorting costs are provided in the level of the farm.

**Marketing organization:**

What is meant by the marketing organization is those persons or groups who are responsible for various activities of marketing system. These individuals are generally divided into three main groups of producers, mediums and consumers. Producers are those individuals to families who are responsible for production of agricultural crops in the farm. The individuals of this group have the first ring of the marketing organization to themselves. Since the number of producers and consumers of the agricultural corps is large and they are dispersed in a wide geographical range, direct relationship between these two groups with one another is not possible. Thus, in order for the agricultural crops to be handed to consumers from the producers, some people called mediums are unavoidable. These individuals and groups do various activities such as transportation, collecting, storing, packaging, conversion and works as such. Mediums of the market of tomato in Dir are the local buyers, product loaders, wholesalers, converters, and retailers.

**Types of markets:**

The markets which are in this path are: farm market, wholesale market, retail market. Tomato farm market is limited to the level of farms. Due to the wide dispersion of the farms in this area, this market includes the entire city. This market is limited in terms of time, in such way that with the beginning of the harvest season in December it starts and it ends by the end of the season in March. Sellers in this market are the farmers and their buyers also include product loaders, wholesalers, retailers, conversion factories and families in order to preference. Since the city Dir does not have farmer's market, wholesale market of tomato is the farmer's market in the city Borazjan which itself can create problems such as transportation costs and also by considering the fact that the product of other areas of the province especially Khormoj and Abadan are transported to Borazjan due to lack of farmer's market, and by increasing supply it leads to the reduction of crop price. Buyers of the presented product to the market, mainly, are the retailers. The retail market of the city Dr has more width than the farm markets in a way that all o the areas of the city has been covered by it. Active people in this market do retail with two moving and fixed methods. The buyers of this market are the final consumers. This market meets its needs daily. The main reason of this issue is also lack of storage room in this section. The retailers of this market prepare their crops mostly from farms in the harvesting season and from wholesale centers in other seasons.

**Marketing paths:**

Distribution means taking the considered crop to the customer in the desirable time and required place. The important and width of the issue of distribution and its role in the marketing matter leads to a certain attention to this issue. This process is done through various marketing paths. These circuits are created when the marketing
factors fall behind one another. Physical transportation of goods and also transferring ownership and the process of its transmission can be done through these channels. According to this, the tomato marketing path of Bushehr can be drawn like graph 1.

Graph 1: Tomato marketing path in Bushehr in the harvesting season.

Path 1: producers \(\rightarrow\) consumers
Path 2: producers \(\rightarrow\) converters \(\rightarrow\) wholesalers \(\rightarrow\) retailers \(\rightarrow\) consumers
Path 3: producers \(\rightarrow\) crop loaders \(\rightarrow\) wholesalers outside the province \(\rightarrow\) retailers outside the province \(\rightarrow\) consumers
Path 4: producers \(\rightarrow\) crop loaders \(\rightarrow\) wholesalers of Bushehr and Borazjan \(\rightarrow\) retailers of Bushehr and Borazjan \(\rightarrow\) consumers
Path 5: producers \(\rightarrow\) wholesalers of Bushehr and Borazjan \(\rightarrow\) retailers of Bushehr and Borazjan \(\rightarrow\) consumers
Path 6: producers \(\rightarrow\) retailers \(\rightarrow\) consumers

Features of the price of tomato in various stages of harvesting:

At the beginning of the harvesting season, due to the shortage of number of mediums, there is not a huge competition about the tomato crop. According to this, the level of farm price is low in this stage. As time goes by, gradually, the number of mediums increases and competition about the crop in the farm market also increases. On the other hand, the quality of the crop of the second harvest is way better and the crop of other areas also reduces as weather gets colder. According to this, the farm price of the crop wonderfully increases in this stage. For instance, in 2013, the farm price in the second harvest has increased about 42% compared to the farm price early in the harvesting season. Gradually and as we reach the end of the harvesting season, and weather gets warmer and also the quality of the crop and also the rate of the products of the other areas which enter the market, we see a descend of tomato price.

Price of marketing services:

Price of marketing service for each of the 6 considered paths has been shown in table (1). It is necessary to explain than the cost of the wastes has been calculated by considering the rate of destroyed product due to rotting and descendant of the product in various stages of the distance between producer and consumer.

<table>
<thead>
<tr>
<th>Marketing path Cost</th>
<th>Path 1</th>
<th>Path 2</th>
<th>Path 3</th>
<th>Path 4</th>
<th>Path 5</th>
<th>Path 6</th>
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<tr>
<td>Workforce cost</td>
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<td>1400</td>
<td>1400</td>
<td>1150</td>
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<td>1000</td>
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<td>450</td>
<td>400</td>
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</tr>
<tr>
<td>Current costs of wholesale</td>
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<td>0</td>
</tr>
</tbody>
</table>
Price of various levels of the market:

In table (2), average prices (weight) have been provided for each of the 6 paths of marketing. The farmers usually present those of their crops to the conversion units that have lower qualities and therefore we see that the paid price of these units to the farmers is less than other market factors.

Calculating marketing margin, marketing cost and marketing efficiency coefficient:

Table (3) shows various marketing margins, share of marketing factors of the final price of the crop and the marketing cost coefficient, which shows the sum of the shares of all marketing mediums in the marketing system hasn't been appropriate.

Efficiency:

Table (4) shows the price efficiency, technical efficiency and total efficiency for the marketing paths of tomato crop in the studied region. As it can be understood from the results, technical efficiency in the second path with 0.9 shows the highest rate among the considered paths. The cause of this matter is the presence of the highest rate of cost of wastes and maximum rate of marketing margin rate in the mentioned marketing path compared to other 4 paths; whereas the rate of price efficiency in this path is 0.52 which is an average number compared to other paths. Total efficiency in this path is also 0.41 and it is seen, the total efficiency has been low in most of the paths and the marketing system hasn't been appropriate.
Determinative factors of market margin:

As it was stated in the section of research method, there are various models for estimating the effective factors on marketing margin. In the present review, by considering the researches done based on the statistics and information associated with 1997-2012, the three surcharge, marketing margin and marketing costs patterns have been used.

The obtained results from the stagnation of the variables indicate that all of the available variables in the functions of stored tomato marketing margin are of the zero degree I(0).

The obtained results from estimating the marketing margin function by using the surcharge pattern shows that marketing margin has a direct relationship with the retail price. In other words, a unit of enhancement in the retail price increases the marketing margin for 0.81 units. Also the variable marketing cost shows that by increasing the marketing cost for 1 unit, the marketing margin reduces for 0.13 units. The $R^2$ value obtained from table (5) is equal to 0.77% which shows that 77% of the changes of the marketing margin of the surcharge pattern have been explained by the model.

Table 5: Results of estimating function of marketing margin based on the mark up pattern.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>T statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-75.10376</td>
<td>62.46661</td>
<td>-1.202303</td>
<td>0.2440</td>
</tr>
<tr>
<td>Retail price</td>
<td>0.810654***</td>
<td>0.116924</td>
<td>6.933143</td>
<td>0.0000</td>
</tr>
<tr>
<td>Marketing price</td>
<td>-0.133118***</td>
<td>0.021570</td>
<td>-6.174656</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: research findings

*,**,*** respectively show significance at the level of , 10, 5 and 1 percent.

Results obtained from evaluating the marketing margin function by using relative margin shows that marketing margin has a direct and significant relationship with the rate of supplied product. In other words, by increasing the marketing cost for 1 unit, the marketing margin increases for 9.55%. Also the marketing cost variable in this pattern hasn't become significant in this function. The $R^2$ value obtained from table (5) is equal to 0.78% which shows that 78% of the changes of the marketing margin rate of the surcharge pattern have been explained by the model.

Table 6: Results of evaluating the marketing margin function based on relative margin pattern.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>T statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>147.1259</td>
<td>87.98493</td>
<td>-1.672171</td>
<td>0.1118</td>
</tr>
<tr>
<td>Retail price</td>
<td>0.845789***</td>
<td>0.119869</td>
<td>7.05922</td>
<td>0.0000</td>
</tr>
<tr>
<td>Value of the sold goods</td>
<td>0.041002</td>
<td>0.035578</td>
<td>1.152461</td>
<td>0.2642</td>
</tr>
<tr>
<td>Marketing price</td>
<td>-0.138517***</td>
<td>0.021880</td>
<td>-6.330645</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: research findings

*,**,*** respectively show significance at the level of , 10, 5 and 1 percent.

The obtained results from evaluating the marketing margin function, by using the marketing cost pattern, shows that marketing margin has a direct and significant relationship with the rate of supplied product. In other words, when the rate of the supplied product increases, the marketing margin increases for 9.55%. Also the marketing cost variable in this pattern hasn't become significant. The $R^2$ value obtained in table (7) is equal to 0.32% which shows that 32% of the changes of the rate of marketing margin of the marketing cost pattern have been explained by the model.

Table 7: Results of estimating function of marketing margin based on the marketing cost pattern.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>T statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>19.05414</td>
<td>149.1792</td>
<td>0.127727</td>
<td>0.8997</td>
</tr>
<tr>
<td>Rate of supplied product</td>
<td>9.546331*</td>
<td>4.639008</td>
<td>2.057839</td>
<td>0.0536</td>
</tr>
<tr>
<td>Marketing price</td>
<td>-0.002312</td>
<td>0.010204</td>
<td>-0.026548</td>
<td>0.8232</td>
</tr>
</tbody>
</table>

Source: research findings

*,**,*** respectively show significance at the level of , 10, 5 and 1 percent.
Conclusion and recommendations:

By considering the evaluated functions for the deterministic factors of market, by comparing these results, it is seen that in the surcharge model, only the intercept hasn't become significant but in the model of marketing costs pattern, the variables intercept and marketing cost haven't become significant and ultimately, in the model of relative margin, the variables intercept and value of sold goods haven't become significant. Thus, we can state that in the models of relative margin and surcharge, compared to the marketing cost method, in order to evaluate the marketing margin, the two first models are more proper by considering the $R^2$ value.

On the other hand, in markup and relative margin patterns, the retail price has a direct relationship with the marketing margin. Also in the three evaluated functions, no variation anisotropy has been seen and distributions of all the wastes has been normal and explanations of these patterns have been proved as well.

Efficiency rates in the level of retail and wholesale show that the costs of wastes in the retail level has been more and it is recommended to attempt to reduce the wastes of the retail by presenting proper solutions such as improving the transportation system and also creating proper storage places in various sections.

Just like the results obtained from the evaluation of various models of marketing margin were seen, the most important effective factor on increasing tomato marketing margin in Iran is the retail price. By considering the fact that retail margin is high, it is recommended for the policies to be focused on the retail prices. The solution for reducing the costs is through cooperative marketing and department stores. In the section of wholesale, we can also reduce the wholesale margin by reducing the marketing costs and also reducing brokering in tomato market.

By considering the price inefficiency of the tomato market, activity of most of the cooperatives in marketing of this product can lead to the improvement of the marketing situation, sale price of those who cultivate tomato and their bargaining power. By considering the higher efficiency in directing in which less marketing factors intervene, if some efforts were done so that doing all sorts of marketing services was possible by producers through rural and agricultural cooperatives, the costs would decrease and the efficiency would increase.

By considering the fact that there are no tomato sauce and tomato conversion factories in the studied province, it is recommended to create enough incentive and facilities for the investors in this field as well by considering the role that these factories can have in buying the crop and preventing loss of the product.

REFERENCES