

The investigation of the current status and feasibility to enhance private/cooperative sectors in Kerman province pistachio market

Iman Hakimi *, Rohollah Sharifi

Department of Management, Payame Noor University, PO Box 19395-3697, Tehran, Iran

Abstract: Pistachio is one of the most important exported produce in Iran. Since long, it has allocated a considerable portion of Iran foreign non-petroleum trade. So, the survey of pistachio market situation is one of the most important issues in Iran. This research has considered the position of private and cooperative sectors, pistachio market structure and its enhancing possibility. The study uses survey and library methodologies to gather information. The statistical populations were 266 people including those who are active in both domestic and international trade. According to Cochran formula, 68 samples were selected by using stratified random sampling. Independent T and Uman-Vitni tests, concentrated ratio and Herfindahl index were applied to test and analyze information. Results indicated that private sector share is more than cooperative sector. World price increase makes private sector be more active than cooperative one in the market. Also results revealed that Kerman's pistachio market structure is semi-competitive.

Key words: Pistachio market; Feasibility study

1. Introduction

Pistachio is one of Iranian most important agricultural exports, so that its proportion in global business of the product had been less than 50 percent only in a couple of years from 1961 to 2005. Iranian custom's latest statistics suggests that in the first quarter of 2012 various types of pistachio like ripe, raw and the kernel only have been exported out of the country, worth over 1,824 million dollars. Iran pistachio export value had reached to 797 million dollars in 2012. From the last year on, the United States ranked first in the world of pistachio production, but since its maximum production is used in domestic market, the country's rate of export has been lower than Iran, and our country still ranks first in pistachio exports.

About 600 thousand tons of pistachio are produced in the world annually in which Iran ranks second and 90 percent of pistachio economy is export economy; so that more than 60 percent of this product, worth several hundred million dollars, is exported to European countries, Arab countries, Far East, etc. among which China is the biggest buyer of Iranian pistachios.

Now considering that this product can operate as a dominant firm in the world market and achieve the price leadership; so any activity that can more strengthen Iran's position in this market does seem to be necessary.

Creating competitive environment in the society and improving the sense of national competing are

areas required to provide entry into the globalization process.

For firms, sectors and the national economy, competitiveness is a quality which is realized through market governing and activities based upon comparative and competitive advantages. As much as a country's competitiveness is higher, that country will benefit from integration into the global economy by easier access to foreign markets. Conversely, countries that have lowest competitive strength, not only benefit from integration in to global economy, but also they may lose.

In continue, we refer to some researches done in this context.

The results of a research performed by Sedaghat, show inefficiency in Fars pistachio marketing system. Inefficiency for the market of dry pistachio nuts was more than wet nuts; its fundamental reasons were the lack of adequate processing facilities and the lack of awareness that pistachio growers had about marketing services; then the lack of cooperative, public and private sectors.

The result of a research performed by Mehraby Boshrobady indicates a reduction in Iran's share of the global pistachio market in recent years. His study shows that there have been essential factors affecting Iran's share, such as: Iran's share of world production, GDP for importing countries, exchange rate deviations from equilibrium, trade policies, commercial deviation factor, and the relative price of pistachios in the consumer market (Abdullahi Ezzatabadi). The Study reveals that according to concentration ratio, pistachio market has a perfect competitive structure at the level of local buyers, and at the level of exports it is close to perfect

* Corresponding Author.

competition structure. In other words, in terms of market structure, namely enough competitors, pistachio market is in a state to be called a perfect competitive market.

1.1. Research objectives

- Investigation and comparison on the position of the private and cooperative sectors in Kerman pistachio market
- Investigation on the competition status in Kerman pistachio market (To determine Kerman pistachio market structure)
- Evaluation of market activist views about issues and problems in Kerman pistachio market
- Evaluation of market activist views in order to improve the current status of the market

1.2. Research hypotheses

1. The private sector has a larger share than the cooperative sector in Kerman pistachio market.
2. Kerman pistachio market structure is quasi-competitive.
3. Increase in pistachio production makes the cooperative sector more active than private sector.
4. Increase in the global prices of pistachio causes greater activity for the private sector than cooperative sector.

2. The methods

2.1. Methods of data analysis

In this study, the obtained data were analyzed using descriptive statistics (frequency tables and graphs), inferential statistics (t-test, U Uman-Vitni test, a Univariate t test, Spearman correlation coefficient), and SPSS software. In order to study the market structure, concentration ratio and the Herfindahl index were used.

1 - The concentration ratio (CR)

Concentration ratio of (n) firms (CRn) indicates the proportion of (n) total sales of largest firms in the market, to the total size of the market.

This indicator can be presented as follows:

$$CR_n = \sum_{i=1}^n s_i \quad i = 1, \dots, k \quad k > n$$

In this equation, k is the number of active firms in industry, n is the number of large firms, s_i is the market share of firm i , and CRn is concentration ratio of n firms.

2 - Her findahl index (H)

Herfindahl index is the sum of squared market shares of all firms in the industry. This index is obtained from the following equation:

$$HI = \sum_{i=1}^n s_i^2$$

In the above equation, s_i is the market share of firm i , and n is the number of firms in the industry.

The index in comparison with Concentration ratio distinguishes far better the market structure, and distribution of market size among existing firms. The index is structured so that it uses all available information in the market. It lies between zero and one; whatever close to zero, the market goes toward competitiveness (lower concentration); and whatever the number is close to one, the market is more close to a monopoly (higher concentration). The inverted index represents the market structure.

2.2. Instruments to collect data

In this study, in order to collect the required data, a realized questionnaire is used. In the questionnaire, each question has five options in which the spectrum and rating score are like this: 1 very low score, 2 low score, 3 average, 4 high score, and 5 very high score. In addition, questions about demographic variables (educational level, age, and type of company) are presented at the beginning of the questionnaire and two open questions are given at the end.

2.3. The population

The population of this research is formed by all people who were directly or indirectly active in Kerman business affairs and were engaged in the sale and export of pistachio market. These people or companies are other than small local intermediaries or retailers in the domestic market. They are pistachio exporters to abroad mainly, or the major buyers from small local producers and intermediaries. According to available data, their number is 226.

2.4. Sample size and sampling methods

According to the number of market activists: 226, which forms the total population, and through using Cochran's formula, the sample size was estimated at 68 people; the statistical sample was also selected using stratified random sampling proportional to the class size. The method to calculate the sample size is as follows:

$$n = \frac{NZ^2 p(1 - P)}{\epsilon^2 (N - 1) + Z^2 p(1 - P)}$$

Where:

N: The population size

n: sample size

Z: The critical value of a standard normal variable, Z in the table is given with confidence level considered

P: proportion of success in the statistical community

ϵ : error negligible

α : the error (rejecting the null hypothesis when it is true is called a Type I error, the probability of a Type I error is shown with α).

Due to the uncertain nature of P (population) the value is assumed 5/0; this approach makes a large enough sample size and its result has a greater reliability.

Sampling has been done proportional to the class size using the following formula:

$$n_i = \frac{N_i}{N} n$$

Table1: Comparison on share of the private sector and cooperative sector in Kerman pistachio market

One-sided significance level	Degrees of freedom	T-statistic	Standard deviation	Average	Sector	variable
0.024	66	*2.01	5.24	24.51	Private	Position
			2.83	17	Cooperative	

*p<0/05 According tot-test significance at the level of 95 percent, the share of the private sector is higher than cooperative sector in Kerman pistachio market

2 - In 2011 the total weight of the Rafsanjan Pistachio export was equal to 51,253,099 kg, and the weight of export pistachio nuts at top four firms in this city is respectively 6,746,528 -5,206,950 - 3,007,000, and 2,767,500 kg.

So, according to the concentration ratio formula, a firm concentration ratio of 13/0, and the four-firm concentration ratio of 35/0 were obtained. Thus, according to Table 2, oligopoly market structure is open.

However, given that the Herfindahl index in comparison with Concentration ratio distinguishes the market structure and market distribution among existing firms far better, and that the index is

N_i is the population size of each class, N is the total population, and is the total number of sample members.

3. Results

The results of the study are presented below according to the research objectives and hypotheses:

1-The Private sector has a larger share in Kerman pistachio marketing comparison with cooperative sector and Table 1 showsthe result of the performed analysis:

structured so that it uses all available information in the market, then the market structure was calculated using the Herfindal index.

According to Rafsanjan customs statistics, Herfindahl index values obtained is equal to 0.51/0, and therefore the opposite is 6/19; then, according to Table 2, we can say that pistachio market structure in Kerman is fully competitive tending toward monopolistic competition.

Hence, regarding the results obtained from the Herfindahl index, the second hypothesis is confirmed, namely the Kerman pistachio market is close to perfect competition (quasi-competitive).

Table 2: Structure of the markets and their characteristics in terms of size and number of firms

Market main feature	Herfindahl index	Concentration ratio	Market structure
There is more than 50 firms in monopolistic competition without having a considerable share of the market.	0 → HI	0 → CR _i	Perfect competition
None of the competing firms has more than 10 percent monopoly on the market.	10 → (1/ HI)	CR ₁ < 10	Monopolistic competition
4 firms have up to 10 percent monopoly on the market.	6 < (1/ HI) ≤ 10	CR ₄ < 40	Open multilateral monopoly market
4 firms have at least 60 percent monopoly on the market.	3 < (1/ HI) ≤ 6	CR ₄ > 60	Close multilateral monopoly market
More than 50 percent of the market is monopolized by a single firm.	1 < (1/ HI) ≤ 3	CR ₁ ≥ 50	Market with a dominant firm
A firm has a total monopoly on the market.	1 → HI	100 → CR ₁	Monopoly market

Rising global prices of pistachio causes more active private sector in comparison with the cooperative sector. The analysis performed is presented in Table 3.

According to the significant of Uman-Vitni statistics a level higher than 95%, we can conclude that higher prices in global pistachio market, makes the private sector more active than the cooperative sector.

Table 3: The effect of rising global prices of pistachio on private sector and cooperative sector activities

Significant level	Uman-Vitni statistic	Variable
0.430	12	The effect of rising global prices of pistachio on the operation of the markets

4- An increase in pistachio production doesn't lead to a more active cooperative sector than the

private sector. The analysis performed is presented in Table 4.

Table 4: The effect of increase in pistachio production on private sector and cooperative sector

Significant level	U man-vitni statistic	Variable
0.143	26/5	The effect of increase in pistachio production on the operation of the firms

Due to the significant of U man-vitni statistic at the level of level of 95percent, we can decide that increasing pistachio production, doesn't lead to a more active cooperative sector compared with the private sector.

5- Evaluation of the market problems and strategies to solve them from the perspective of Kerman pistachio market activists

The results of a study on market problems from the perspective of market activists are shown in Table 5.

Table 5: Market problems from the perspective of activists in Kerman Pistachio market

Priority	Frequency of problem	Total number of persons interviewed	Number of Respondents	Type of problem
1	16/18	68	11	Exchange rate volatility
2	8/82	68	6	Instability of pistachio market
2	8/82	68	6	International sanctions
3	5/88	68	4	Brokers and intermediaries have interned the market seriously damages(They buy various kinds of pistachio and mix them; so the quality comes down)
3	5/88	68	4	Lack of a system to ensure the price and the rate of sales
4	4/41	68	3	Lack of supervision and management in pistachio industry
5	2/94	68	2	Lack of confidence in pistachio growers toward buyers
5	2/94	68	2	Lack of appropriate packaging
5	2/94	68	2	Loss of good markets in Europe
5	2/94	68	2	Lack of coordination between the various agencies concerned with pistachios
5	2/94	68	2	The absence of a strong and robust cooperative
5	2/94	68	2	Exports low level of quality
6	1/47	68	1	Noloans granted by Agricultural Bank; no loans from other agricultural sectors generally
6	1/47	68	1	Every year the production is less
6	1/47	68	1	Inflammation in economic conditions
6	1/47	68	1	Lack of proper grading of pistachio
6	1/47	68	1	Role of Government
6	1/47	68	1	Association inefficiency

As presented in Table5, from the perspective of market activists, among the problems in Kerman pistachio market, the exchange rate volatility is in priority, instability of pistachio market and international sanctions jointly are in second priority, Brokers and intermediaries in pistachio market, and the lack of a system to ensure the rate and price of sales are jointly in third priority.

The result of an analysis performed on the guidelines which were proposed by the pistachio market activists is given in the Table 6.

As presented in Table 6, from the perspective of market activists, among the strategies to solve the problems in Kerman pistachio market, stabilizing the currency prices and preventing inferior products from export are jointly placed in first priority; having a robust chamber is in the second, and appropriate packaging is in third priority.

4. Conclusion and discussion

The first hypothesis compared and analyzed the position of both private and cooperative sectors in Kerman pistachio market. The results of data analysis revealed that in comparison with cooperative sector, the private sector has a greater proportion of Kerman pistachio market with 95 percent market share.

The second hypothesis studied the structure of Kerman pistachio market. With due attention to a firm concentration ratio of 13/0 and the four-firm concentration ratio of 35/0 respectively, so based upon Concentration ratio, the structure of oligopoly market is open. However, since the Concentration ratio will examine only a couple of large firms in the market, Herfindahl index is more accurate. According to customs statistics obtained from the city of Rafsanjan, value obtained for the Herfindahl index is 0/051, and so the opposite is 19/6. Hence, based upon Herfindahl index which considers all export firms, we can decide that Kerman pistachio market structure is fully competitive tending toward monopolistic competition (quasi-competitive).

Table 6: Strategies to solve the problems from the perspective of Kerman pistachio market activists

Priority	Frequency of strategy	Total number of persons interviewed	Number of Respondents	Strategy
1	7/35	68	5	Currency price stabilization
1	7/35	68	5	Preventing export of inferior product which is a notorious weakness of Iranian Pistachio
2	5/88	68	4	Having a robust chamber
3	4/41	68	3	Proper packaging
4	2/94	68	2	Proper grading of pistachio
4	2/94	68	2	Coordination and value to pistachio growers, producers and sellers
4	2/94	68	2	State purchase of pistachio
4	2/94	68	2	Assistance and facilities within the framework of cooperation rules
5	1/47	68	1	State payment of the costs generated by production (insurance, freight, electricity, water, gas, etc.)
6	1/47	68	1	Ad for Pistachio selling the market
6	1/47	68	1	Production with high productivity
6	1/47	68	1	Processed products
6	1/47	68	1	Removal of sanctions
6	1/47	68	1	Possibility to transfer money from buyer countries
6	1/47	68	1	Cooperation of all agencies involved in Pistachio
6	1/47	68	1	Strengthening the cooperative sector and organizing private sector for export
6	1/47	68	1	Having a regular and stable upstream
6	1/47	68	1	Pistachio performance monitoring
6	1/47	68	1	Coordinating the market so as to stabilize prices and slick the procedure.
6	1/47	68	1	To grow public confidence

The third hypothesis analyzed and compared the effect of pistachio production in the private sector and cooperatives. According to the data analysis, it was determined that a 95% increase in pistachio production doesn't lead to a more active cooperative sector than private sector.

The fourth hypothesis studied and compared the effect of rising global prices of pistachios in the private sector and cooperatives. According to data analysis it was confidently determined that a 95% increase in global prices of pistachio caused the private sector to become more active than the cooperative sector.

The results concerning the position of the private sector and cooperatives in Kerman pistachio market showed a much stronger position for the private sector compared with the cooperative sector. The results correspond with a research performed by Sedaghat, about the status and performance of the private sector and cooperatives in Kerman pistachio market.

The results obtained in this research revealed that Kerman pistachio market structure is quasi-competitive. Abdullahi Ezzatabadi study (2009)

indicated that pistachio market is a perfect competition at the level of local buyers, and close to a perfect competition structure at the level of exports. Besides, he revealed by another study that the market structure for pistachio exporters is competitive. As a result, these research findings are in line with the result of Ezzatabadi Abdullahi study.

The present results also indicated that the increase in pistachio production relatively doesn't make any change in the position of private and cooperative sectors, while with the global rising of pistachio prices the private sector will be more active than the cooperative sector. Since the private sector often seeks to maximize the benefits from pistachio exports, regarding the global rising of pistachio prices, it seems natural for the sector to have a higher rate of purchase, export and benefit in comparison with the private sector. Whereas, with an increase in production, the cooperative sector also proceeds with the private sector and continue to purchase and buy pistachios; then the sectors will both progress.

5. Research suggestions

After reviewing the research data it was identified that a large number of market activists are not familiar with the Supreme headquarters of pistachios in the country. On the other hand, the results revealed that familiarity with mentioned organization can affect the position of companies in the market. Consequently, market activists are suggested to accustom with the Supreme headquarters so as to enhance the position of their companies. The Supreme headquarters are also recommended to apply sufficient advertisement in order to accustom market activists.

- Due to the fact that a valid factor affecting pistachio exports and the progress of companies in the market is to use the services of banks, financial institutions and credit unions; then governmental authorities, bank officials and institutions are proposed to have more cooperation so as to improve the pistachio market.
- Among current problems existing in pistachio market, fluctuations in exchange rate was introduced as the main challenge; therefore, fundamental measures should be taken to solve this problem.
- Brokers and intermediaries are also among the problems in Kerman pistachio market; then it should be tried to diminish their role.

References

- AbdullahiEzzatAbadi, M;(2000),*Calculating the degree of monopoly in the domestic market of Iranian pistachios*, Journal of Agricultural Economics and Development, Volume Twenty-Four, No.3, pp.335-345
- AbdullahiEzzatAbadi, M;(2010),*Evaluation of the factors affecting to create a monopoly in the domestic market of Iranian pistachios*, Journal of Agricultural Economics Research, Volume II, No. 3, pp.55-75
- Azar, A; Momeni, M; (2005), *Statistics and Its Applications in Management*, Tehran: Samt Pub
- Dashti, Q; Khodaverdi zadeh, M; Mohamad rezayi, R;(2010), *the comparative advantage of global pistachio export market structure*, Journal of Agricultural Economics and Development, Volume Twenty-Four, No. 1, pp. 99-106
- Ebadi, J; ShahikyTash, M,N;(2004), *Evaluation of the focus of global markets in selected agricultural products and its impact on Iran's non-oil foreign exchange earnings*, Journal of Economic Research and Agricultural Growth, Tehran University, No. 67, pp.61-90
- HosseiniPour, S,M,R; Chizari, A,H;(2003), *Evaluation of the Effect of currency and trade policies on the global market structure of Iranian pistachios*, Journal of Economic Research, No. 7, 8, pp.71-80
- MehrabiBoshhrabady, H; (2002), *Evaluation of the factors affecting Iran's share of the global market for pistachios*, Journal of Agricultural and Development Economics, Volume 10, Issue 39, pp.85-102
- Sedaghat, R; (2000), *Economic Survey of pistachio marketing in Fars province*, Journal of Agricultural Economics and Development, No. 32
- Sedaghat, R; (2007), *Evaluation of growth and factors affecting competitiveness of Iranian pistachio in global market*, Journal of Agricultural Economics, No.1
- Yazdanpanah,A; Jafari Taheri, S;(2004), *the competitiveness of Iranian agricultural products in the global market: A case study of pistachios*, Journal of Business Studies, No. 7, pp.12-20