



Iran's export competitiveness in the supply of pistachio products in target markets

1062

Morteza Majidian^{1*}, Erfan Roshani², Yasaman zahra zeinali³

1-BS student in Agricultural Economics, University of Tehran
Mortezamajidiyan@ut.ac.ir

2- BS student in Agricultural Economics, University of Tehran
Eroshani14@gmail.com

3- BS student in Agricultural Economics, University of Tehran
Zeinaliyasaman631@gmail.com

Abstract

Export of agricultural products is one of the strategies of export development and sustainable economic growth in developing countries. Since Iran has been among the top four countries in the world in pistachio exports in recent years, the purpose of this study is to compare the structure of the world market of this product as two links of the pistachio supply chain and to calculate the revealed relative advantage of their exports in the world and countries. The goal of Iran was determined. Based on the results, the structure of the global product market in the period of 2012-2018, despite the high share of the top four market powers, has been a closed multilateral monopoly in most years, which indicates the small share of most competitors and high competition between them. But due to the large share and the stability of market leadership, the possibility of taking the share of big countries for small competitors is small. Therefore, it is suggested that Iran, with an average share of 26% in the pistachio market, should prioritize a number of markets in which it has more competitive power for penetration, market development and branding. On average, pistachio exports to the countries of China, Russia, India, Turkey, Pakistan, Italy, and Kazakhstan have had the greatest relative advantage for Iran, which is suggested to include a number of markets in which, based on the relative advantage index, the competitive power has been revealed and has stability, including the Russian, Indian, Kazakhstan markets to prioritize penetration, market development and branding. It is worth mentioning that, due to the higher relative advantage of pistachio compared to other products, its higher added value, the possibility of more branding and the ability to store and transport, it is recommended to develop investment in transformation industries and complete the supply and marketing chain. The development of pistachio export market should be prioritized in the country.

Key words: export target markets - obvious symmetrical relative advantage - pistachio product - market structure world

DOI Number: 10.14704/nq.2022.20.11.NQ66101

NeuroQuantology 2022; 20(11): 1062-1072

Introduction

Foreign trade and exports are so important in the economy of countries that its expansion is one of the main goals of the economic programs of developing countries. The importance and place of foreign trade in the economic growth and development of countries

is such that economists mention it as the engine of economic development. Because trade improves, the competitiveness creates employment and increases foreign exchange earnings in the country (Mehrparvar Hosseini, 2012). One of the main goals of developing countries is to achieve sustainable economic



growth and development, and the expansion of exports can be a direct factor for economic growth. Therefore, these countries Always looking for the development of their exports to benefit from opportunities, financial sources, income and other benefits (Behzadnia et al., 2019). so that in many developing countries, such as Iran, export jump is defined as a development strategy (Rafiei et al., 2018). The most important characteristic of Iran's economy is its strong dependence on oil revenues (Ahmadi and Kayani Rad 2015). The dependence of the economy of Iran and other oil-producing countries on oil revenues and the withdrawal of these revenues from political and economic issues has made this country's economy vulnerable. Therefore, any fluctuation in the price of oil will lead to a deficit in their balance of payments (Mehrparvar Hosseini 2012). One of the ways to deal with this challenge is to produce products that increase non-oil exports while improving the domestic economy. Therefore, it is necessary to expand the export of non-oil products and diversify the country's foreign exchange earnings, which can be replaced by encouraging non-oil exports, including agricultural goods and processing industries. should be appropriate (Ahmadi and Kayani Rad 2015). (Export development in the agricultural sector requires knowing the potential export of products and global markets (Palouj 2018). The export of goods to foreign markets is done with the aim of gaining profit and continuous income by satisfying the consumers, in the conditions where the markets are competitive, in addition to the facilities and abilities of each country in the production and export of goods, knowing the export markets and the target markets is essential. The effective factors in determining the appropriate strategy in the economic development of any country under the title of export development strategy is having a relative advantage in

production and export. Also, the organizational structure of the market shows the characteristics of the market, which can be used to determine the relationship between the components of the competitive market and the nature of pricing in it (Mahmodi and Vali Beigi 2013). Food processing industries as industries related to agricultural products are one of the most important industrial groups that can play an important role in the economic development of countries. The creation and development of these industries can have a special effect on increasing the added value of agricultural products and increasing the export value of this sector. May it bring more foreign exchange income compared to selling raw materials (Turkmani and Zoghipour 2008). Pistachio is one of the agricultural products that is mixed with the name of Iran and its production in the country has a historical history and has been cultivated and exploited in different parts of Iran for a long time. It has a historical background and it is believed that it was domesticated and emphasized in Iran about 34 thousand years ago in line three (Panahi et al., 2013). International Trade In 2020, Iran's share in the global pistachio export market was 43%, and the foreign currency income from the export of this product in the same year was about 128,6271,000 dollars, and it was ranked first, as shown in Figure 1. Iran's pistachio export in 2020 is shown and it shows Iran's target markets. The best target markets for pistachio products are Iran's neighboring countries. Currently, the countries know that the geographical distance is far away due to the higher price and higher foreign exchange income of the processed products of this agricultural product, including in the target pistachio markets, as a business strategy, it can strengthen the country's export earnings. Optimum use of production resources so that in countries where Iran has a good position in



terms of competitiveness in the pistachio market, branding and development of the pistachio market should be on the agenda. And each of the target markets of this country is necessary, therefore the purpose of this article is to examine and compare the structure of the export market and the position of Iran in the world market of pistachios during the years 2020 to 2012 and also to evaluate the relative advantages of Iran in the export target markets of pistachio products. Better than the market and formulating more efficient competitive strategies for this purpose, it continues to examine some previous researches in the field of market structure and relative advantages. Farajzadeh and Bakhshudeh (2010) investigated the structure of the world pistachio market with an emphasis on the power of the Iranian market, and the results showed that the structure of the pistachio market is a closed multilateral monopoly. Also Parvar Hosseini et al. (2012) in their research using concentration ratio indices and Hirfindahl-Hirishman relative

advantages of import and export to investigate the business model and structure of the date market in Iran and the world in the period of 1992-2011 showed that the structure The world date market and Iran's target market have become more competitive during this period, and contrary to the reduction of the obvious comparative advantage index of Iran, this country still has competitive power in the world market. Khodavardzadeh and Mohammadi (2016) determined the comparative advantage in their advertisements and analyzed the structure of the world market of medicinal plants in the period of 2000-2011, which showed that the comparative advantage of Iran's exports during the years Meanwhile, all major exporting countries (China, USA, Spain, Portugal and Turkey) had a stable export trend. Other studies in this field include Aminizadeh et al. (2014) Ferto and Hubbard (2003).Ishchukova and Smutka (2013) .Mirbagheri et al. (2019) who investigated the market structure and competition in the market of various products

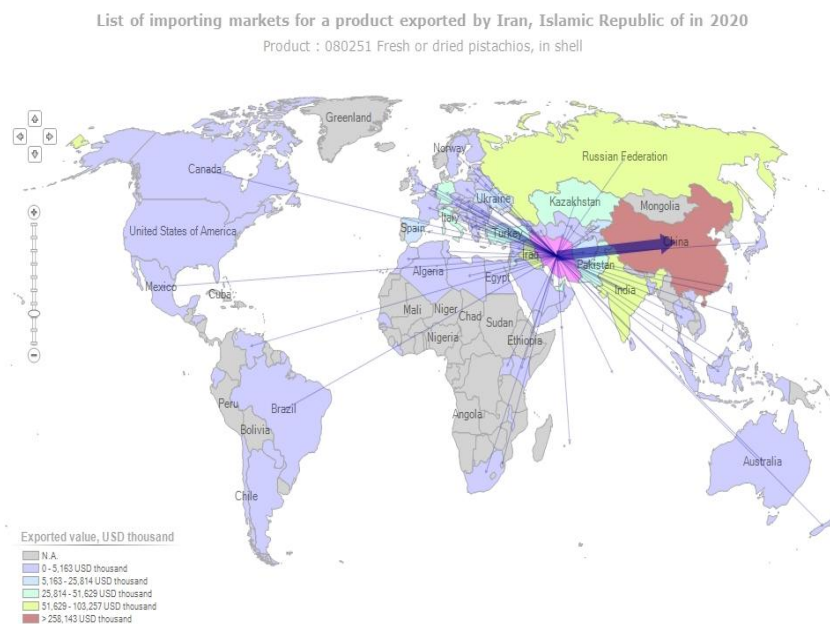


Figure 1. Year in the world pistachio exports to Iran Map 2020

Source: International trade center



The purpose of this study is to investigate the global market structure and the revealed relative advantages of Iran in the pistachio target market, the supply chain links in this direction, after the research method, the results and suggestions will be presented.

Materials and Methods

According to international trade theories, export development in each country requires measures that include identifying relative advantages and prioritizing advantageous industries and investing in the development of export activities (Mahmoudi and Vali Beigi 2003). The law of comparative advantage in trade means that if a country can export goods at a lower cost than other countries, it has a comparative advantage in exports compared to other countries, and by entering the world trade market, it can make more profit from the export of goods that are They have a relative advantage (Mohrparvar Hosseini et al. 2012). Market structure represents the organizational characteristics of the market that can be used to determine the relationship between the components of the competitive market and the nature of pricing in it (Gajurel and Pradhan 2012). The most well-known indicators of market structure are: concentration ratio index (CRN), Herfindahl-Hirschman index (HHI). Therefore, in this change, in order to examine the structure of the world market of pistachio products, the two mentioned indicators have been used, which we will introduce below.

1-Concentration ratio (CRN) The concentration of n large companies in the market indicates the ratio of the total sales of the market to the total size of the market by these companies. This index can be presented in the form of equation (1) (Khodavardizadeh and Mohammadi 2016).

(1)

$$CR_n = \sum_{i=1}^n S_i$$

In this equation, n is the number of large countries (usually four exporting countries) active in pistachio product Herfindahl-Hirschman index (HHI): Herfindahl-Hirschman index is calculated from the sum of the .markets square power of the market share of all countries active in the market. This index is obtained from equation (2) (Gajurel, and Pradhan, 2012).

(2)

$$HHI = \sum_{i=1}^k S_i^2$$

Based on table 1), this index is equal to two zeros. If this number approaches zero, the product market will move towards competitiveness (less concentration) and if the number approaches one, the market will move towards monopoly (more concentration).



Table 1. Kinds of market structure and its characteristics

The main feature of the market	Herfinahl-Hirschman Index	Concentration ratio	Market structure
There are more than 50 competitors without a significant market share.	$HII \longrightarrow 0$	$CR_1 \longrightarrow 0$	Perfect Competition
None of the competing firms has more than 10% of the market.	$(1/HHI) \longrightarrow 10$	$CR_1 < 10$	Monopolistic Competition
4 companies have up to 40% of the market	$6 < (1/HHI) \leq 10$	$CR_4 < 40$	Open Oligopoly
4 companies have at least 60% of the market.	$3 < (1/HHI) \leq 6$	$CR_4 > 60$	Close Oligopoly
More than 50% of the market is owned by one firm.	$1 < (1/HHI) \leq 3$	$CR_1 \geq 50$	Dominant firm
One firm monopolizes the entire market.	$HII \longrightarrow 1$	$CR_1 \longrightarrow 100$	Monopoly

Source: Maddala *et al.* (1995)

According to the theoretical literature, the revealed comparative advantage index is a measure to measure export competitiveness (Salami and Pish Bahar 2013).

Which has been used in many studies as seen in the previous section, this index is obtained from the equation (Amirnejad *et al.* 2014).

(3)

$$RCA_{ij} = \frac{\frac{x_{ij}}{\sum_i x_{ij}}}{\frac{\sum_j x_{ij}}{\sum_i \sum_j x_{ij}}}$$

- P is the set of all products (with $i \in P$),
- X_{Ai} is the country A's exports of product i ,
- X_{wi} is the world's exports of product i ,
- $\sum_{j \in P} X_{Aj}$ is the country A's total exports (of all products j in P), and
- $\sum_{j \in P} X_{wj}$ is the world's total exports (of all products j in P).



The index in the range of zero to one indicates no advantage and in the range of 1 to infinity it indicates the presence of relative advantage and moving towards business specialization (Mehrpararhosseini et al., 2012). The growing trend of this index shows the improvement of the competitive position of a country in the world market of that product. In addition, the high fluctuations of this index over time can be considered as a measure of instability in the commercial system of a country. Changes in relative advantage may be due to reasons such as changes in the relative cost of producing goods, exchange rates, internal trade barriers or countries that want those goods (Salami and Pish Bahar 1380). In this article, the revealed comparative advantage for the export of pistachio products to Iran's target countries has also been calculated. Considering that in the revealed relative advantage index for export, the absence of relative advantage in the range of zero to one and the presence of relative advantage in the range of one to infinity is defined for the symmetry of this range, the relative advantage index has been revealed and can be used alongside this index. Which is calculated from equation (4) (Animizadeh et al., 2013)

(4)

$$RSCA = \frac{RCA -}{RCA +}$$

1067

The range of changes of this index is between negative one and positive one, if RSCA is negative one and zero, it indicates the absence of relative advantage, and if it is between zero and positive one, it indicates relative advantage. In this research, the data required to calculate the relative advantage and examine the market structure have been extracted from the International Trade Center website for the years 2012 to 2020, and Excel software has been used to calculate the indicators.

Results and discussion

The most important export target markets for Iranian pistachio products in the years studied in this article, 2012-2020, are China-India-Russia-Iraq-Kazakhstan-Pakistan-Turkey-Italy-Spain, most of which are neighboring countries and Central Asia. It was chosen that first the market structure indicators were calculated based on the literature, and the results can be seen in tables (2) and (3).



Table 2. The structure of the pistachio market and Iran's situation in it in 2018-2012

year	Leaders of market	CR1	CR4	HHI	1/HHI	Market structure
2012	United States of America Iran Hong Kong, China	36	89	0.27	3.66	Close Oligopoly
2013	United States of America Iran Hong Kong, China	64	144	0.76	1.3	Dominant firm
2014	United States of America Iran Hong Kong, China	33	88	0.26	3.84	Close Oligopoly
2015	Iran United States of America Hong Kong, China	32	85	0.23	4.22	Close Oligopoly
2016	United States of America Iran Hong Kong, China	34	90	0.26	3.83	Close Oligopoly
2017	United States of America Iran Hong Kong, China	45	91	0.3	3.23	Close Oligopoly
2018	United States of America Hong Kong Iran, China	54	87	0.34	2.9	Dominant firm
2019	United States of America Iran Hong Kong, China	48	90	0.32	3.09	Close Oligopoly
2020	Iran United States of America Hong Kong, China	43	90	0.36	2.8	Dominant firm
<u>Average</u>		43.22	94.89	0.344	3.21	Close Oligopoly
Min		32	85	0.23	1.3	Dominant firm
Max		64	144	0.76	4.22	Close Oligopoly
Coefficient of variation		0.25	0.20	0.47	0.27	

Source: Research findings

According to the Herfindahl index, the structure of the pistachio market in the period 2012-2020 was mostly a closed monopoly, but the share of the top four competitors was more than 60%, which indicates a tendency towards a closed monopoly structure, and actually states that the top four countries can increase their market share. They pay attention and other competitors compete with each other with their

small shares. The average rank of Iran in the period of 2012-2020 in the pistachio market was the second in the world and the average share of Iran in the world market was 30%. Table 2 shows the results related to the revealed relative advantage index for the export of Iran's pistachio product, which shows that Iran had a relative advantage in the export of pistachio in the period of 2012-2020.



Table 3. The relative advantage of Iran's exports in the world pistachio markets in the period of 2018-2012

year	Comparative advantage revealed	Symmetric comparative advantage was revealed
2012	78.63	0.97
2013	92.65	0.98
2014	91.39	0.98
2015	130.95	0.98
2016	111.08	0.98
2017	78.09	0.97
2018	33.07	0.94
2019	140.54	0.99
2020	521.87	1.00
<u>Average</u>	142.03	0.98
Min	33.07	0.94
Max	521.87	1.00
Coefficient of variation	1.03	0.02

Source: Research findings

Table 3 shows Iran's export relative advantage of pistachio product in Iran's target markets, most of which are neighbors. Among the target countries, pistachio export to Russia had the highest advantage on average. And the growing trend of this index, regardless of fluctuations, shows an improvement in Iran's relative advantage Iran has the most competitive power in the Russian pistachio market with an average relative advantage of 251514.28 there are other competitors in the market of this country. Also, India is in the third place of the target markets, a relative advantage, unlike the high volume of imports of this product from Iran compared to other target markets of Iran, that is, despite the large volume of pistachio exports to India, Iran's competitiveness in this market is compared to its strength in Russia. Lower



Table 4. The relative advantage of pistachio exports to Iran's export target countries in 2018-2012 was revealed.

	CHINA	RUSSIAN	INDIA	TURKEY	PAKISTAN	KAZAKHSTAN	italy
2012	17.02	724178.691	0	32.31	1364.19	18350.58	514.03
2013	36.93	122656.1707	257387.2887	27.62	13394.09	18908.46	545.12
2014	67.90	16182.90487	8317.438965	23.54	1152.89	3908.90	670.11
2015	201.99	35143.76943	78101.35093	122.75	4265.60	11006.68	1223.05
2016	230.20	33529.82553	11674.98457	196.27	110911.89	13668.28	14239.79
2017	98.09	427127.8992	142206.679	162.15	0.00	47394.65	7054.82
2018	524.01	168583.7782	10774.58706	19.11	6036.70	109332.53	2077.98
2019	18224.64	285349.6138	3081.338181	19.88	7212.30	5156.63	2945.71
2020	2533628	450875.8306	45648.11041	154.73	3050.38	16457.99	25560.53
Average	4970.79	251514.28	61910.20	84.26	16376.45	27131.63	6092.35
Min	17.02	16182.90	0.00	19.11	0.00	3908.90	514.03
Max	2533628	724178.69	257387.29	196.27	110911.89	109332.53	25560.53
Coefficient of variation	1.95	0.96	1.40	0.87	2.18	1.23	1.41

Source: Research findings

Selection of target markets, Iran's export advantages in the market was an important target for the pistachio product. The study and the results showed that Iran's pistachio exports to India, Russia and Kazakhstan respectively have the most advantages and the least fluctuations in exports. The advantage index that shows the competitiveness and stability in this market, therefore, the influence of the markets of these three countries can be placed in Iran's priority and according to the country's brand and position in this market. Considering the downward trend, Iran's competitiveness in the American pistachio market is not improving. Also because the relative advantage of the pistachio product is greater.

Conclusion

Considering the role of non-oil exports, agriculture and food processing industries abroad in exchange of profits, the objectives of this study were to compare the structure of the global pistachio market as a pistachio supply chain and to calculate the revealed relative advantage. The export of this product in the world and the goal of Iranian countries based on the results, to restructure the global pistachio oligopoly In most of the years of the 2018-2012 period, despite the high share of the top four market powers, it shows a small share of more competitors. Competition between them, but considering the large share and stability of the market leadership, it is unlikely



that small competitors can capture the big
Therefore, it is suggested that Iran, with an average share of 26% in the pistachio market, prioritize a number of markets where it has more competitiveness, market penetration, market development and branding. In this article in order to create a clear picture for The priority is to use the domestic products of the country Resources such as water and energy and subsidies In an efficient system with production assigned to it The highest added value and foreign exchange income Sources And transportation, it is suggested, with development Investing in food processing industries and Complete supply chain and marketing, development Pistachio export market should be given

References

- 1- Ahmadi, A., A. Kiani Rad. (2016). Assesment of Competitive Power of Iran in Global Market of Tomato Paste, The first national conference on new approaches in accounting and management, Mianeh, Iran.
- 2- Aminizadeh, M., H. Rafiee, A. Riahi, E. Mehrparvar Hosseini. (2014). Pattern of Competitiveness of Pistachios World Premier Exporters in Iran's Importers Market. *Agricultural Economics* 8(2): 41-68.
- 3- Amirnejad, H., S. Shahabi, H. Navidi. (2015). The Investigation of Trade Dimensions of Iran's Raisins. *Agricultural Economics and Development* (23): 217-245.
- 4- Behzadnia, P., N. Senobar, S. Hosseini. (2019). The Impact of Export Incentive Programs on Export Performance: The Role of the Attractiveness of Foreign Markets and Export Capabilities. *Journal of International Business Administration* 2(3): 63-85.
- 5- Farajzadeh, Z., M. Bakhshoodeh. (2011). Studying Pistachio World Market Structure with Emphasis on Iranian Market Power. *Agricultural Economics and Development* (73): 125-145.
- 6- Ferto, I., L. Hubbard. (2003). Revealed Comparative Advantage and Competitiveness in Hungarian. *The World Economy*, 26: 247-259.
- 7- Gajurel, D.P., R.S. Pradhan. (2012). Concentration and Competition in Nepalese Banking, *Journal of Business, Economics & Finance*, 1: 5-16.
- 8- International Trade Center. (2020). <https://www.trademap.org/Index.aspx>
- 9- Ishchukova, N., L. Smutka. (2013). Revealed comparative advantage of Russian agricultural exports. *Acta Universitatis Agriculturae ET Silviculturae Mendelianae Brunensis*, 4.
- 10- Khodaverdizadeh, M., S. Mohammadi. (2017). Comparative Advantages and Analysis of International Market Structure of Medicinal Plants: Case Study of Anise, Badin, Fennel and Coriander.
- 11- Maddala, G.C., S. Dobson, E. Millen. (1995). *Microeconomics, the Regulation of Monopoly*, Mc Grawhill Book Company Press.
- 12- Mahmoudi, A., H. Vali Beigi. (2004). Analysis of comparative advantages and prioritization of target markets for the export of Iranian dairy products, Ninth Conference on the Development of Non-Oil Exports, Tabriz Chamber of Commerce, Industries and Mines, Iran: 159-194
- 13- Mehrparvar Hosseini, E. (2013). Factors Affecting Iran's Agricultural Trade Balance Behavior, M.Sc. Thesis, University of Tehran, Tehran.
- 14- Mehrparvar Hosseini, E., M. Aminizadeh, H. Rafiee, A. Riahi, M. Bastani. (2013). Designing of Iranian Dates Trade Model; Application of Trade Advantages and Theory of Market Structure. *Agricultural Economics* 7(2): 19-46.
- 15- Modarresi, M., S. Afrasiabi, H. Bagheri Garbollah, and F. Khani. (2020). Prioritizing Export Target Markets of Tomato Iran Using Numerical Taxonomy Analysis. Microsoft Excel. 2019. Microsoft, LA, USA
- 16- Mirbagheri, S.SH. H. Rafiee, and H. Akbarpour. (2019). Market structure analysis and export pattern of Iranian saffron. *Iranian Journal of Medicinal and Aromatic Plants* 35(5): 802-818.
- 17- Palouj, M. (2018). Pathology of the Agro-industrial Exploitation System and Its Development Strategies.



Iranian Agricultural Extension and Education Journal
14(2): 201-217.

- 18- Rafiee, H., S. Mirbagheri, H. Akbarpour, E. Jalili. (2018). Investigating the structure and compilation of the selection model for Iranian export markets. Business strategies Shahed University 25(12):66-76.
- 19- Salami, H., and E. Pishbahar. (2001). Changes in the Comparative Advantage Pattern of Agricultural Products in Iran: An Applied Analysis Using Expressed Comparative Advantage Indicators, Agricultural economics and development, 9 (34): 67-99.
- 20- Turkamani, J., and A. Zoghipour. (2008). Factors affecting the export supply of Iranian food industry products. Agricultural Economics, 2 (1), 23-33.

