J. Agr. Sci. Tech. (2014) Vol. 16: 253-264

Determining Revealed Comparative Advantage and Target Markets for Iran's Stone Fruits

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ABSTRACT

This study investigated the export status of stone fruits in Iran during 1997 to 2010. Export trends and revealed comparative advantage of indices, namely, Revealed Comparative Advantage (RCA), Revealed Symmetric Comparative Advantage (RSCA), and Relative Export Advantage (RXA) as well as Trade Mapping (TM) were investigated for cherries, plums, peaches, and apricots. Target markets for these products were ranked using numerical taxonomies. The results showed that Iran had export's comparative advantage for stone fruits only in 2007 and 2010. But, this index had a positive growth for the stone fruits in those years, indicating an increasing trend in the export status of these products. Trade mapping analysis indicates that although the export market for these products has declined during the period studied, Iran has taken a greater share of the market and is among the winner groups. The principal export markets in decreasing order were found to be Germany, The UK, France, Italy, the Netherlands, Russia, Saudi Arabia, Bahrain, Switzerland, the UAE, and Afghanistan.

Keywords: Export revealed comparative advantage, Market structure, *RCA, RSCA, RXA*, Stone fruits, Target markets, *TM*.

INTRODUCTION

Recognizing target markets and prioritizing potential markets for a particular product can eventually be useful in developing efficient marketing strategies related to decision makers and administrators. Due to the manifold and profitability of global transactions, benefits of joining the globalization process can be considerable. To enter this stream, evaluation of competitiveness levels is necessary. Furthermore, there is an emerging concern and ongoing discussion among the less developed countries about the threats of increasing exports share of some robust economies and the consequent intensification of competition among manufactures (Batra and Khan, 2009). Hence, taking steps to keep and even increase the power markets by identifying and prioritizing the target markets is an important matter. In this context, substantial number of studies have been done. Recently, Kathuria (2013) analyzed the competitiveness of clothing sector using dynamic revealed comparative advantages for Bangladesh and India. Besides, Kuldilok *et al*. (2013) analyzed the status of export competitiveness of tuna industry in Thailand for major exporters in the worldwide market as well as competitors in individual export market. Wei and Chunming (2012) also had a comprehensive analysis for manufactured products of China for both global and the U.S. markets, using *RCA*'s index from 2002 to 2009. Further, Sadeghi *et al*.

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[DOR: 20.1001.1.16807073.2014.16.2.14.0]

(2011) determined the comparative advantage of export and the structure of import and the export of global market of saffron in Iran. Teymouri *et al*. (2012) also investigated the position of Iran in fennel export based on *RCA* and *RSCA* indices. In short, by reviewing previous similar studies, it seems there is no comprehensive study on the current status of Iran's export of stone fruits and, particularly, comparative advantage and target markets for these products. Identifying target markets and prioritizing potential markets for a particular crop can help to find the best strategies for companies that export especial crops. Further, planners and administrative authorities can use information business strategies, especially in bilateral trade negotiations. Therefore, in this research, the exports of stone fruit and their revealed comparative advantage were examined for Iran. Furthermore, the markets were prioritized in terms of the export of these products.

MATERIALS AND METHODS

The Indexes of Export's Revealed Comparative Advantage

The main indicator for evaluating the countries' agricultural trade performance is the revealed comparative advantage (RCA) index (Brasili *et al*., 2000; Arias Segura, 2001), which is defined by Balassa (1965):

$$RCA_{ij} = \frac{X_{ij} / X_{tj}}{X_{iv} / X_{tw}} \quad (1)$$

Where, X: Exports; i: country index; n: set of countries; j: commodity index; t: set of commodities.

The numerator represents the commodity structure of the exports from Iran and the denominator represents the product structure of the global market. The range of *RCA* is between 0 to ∞. *RCA*> 1 shows sectors in which a country is relatively more specialized and vice versa (the more the value of the index, the greater reliability and the better position is provided).

The benefit of comparative advantage index is that it takes into consideration the intrinsic advantage of a particular export commodity as well as the consistency with changes (Batra and Khan, 2009). However, one of the main disadvantages of *RCA* index is its wide range such that it is too wide to determine the degree of comparative advantage properly. To solve the above problem, Laursen (1998) introduced another form of *RCA* index using a symmetric or normalized index by a homogeneous transformation called revealed symmetric comparative advantage (RSCA):

$$RSCA_{ij} = (RCA_{ij} - 1)/(RCA_{ij} + 1) \quad (2)$$

These changes range between -1 and +1 so that negative values indicate no advantage and positive values indicate that there is an advantage.

Vollrath (1989) criticized additional counting of export and, instead, introduced the *RXA* index as follows:

$$RXA_{ij} = \frac{X_{ij} / \sum_{l,l\neq j} X_{il}}{\sum_{k,k\neq i} X_{kj} / \sum_{k,k\neq il,l\neq j} \sum X_{kl}} \quad (3)$$

Where, X_{ij}: The export of commodity *i* to country j; X_{il}: The export of commodity *i* to other countries; X_{kj}*:* The export of other commodities by country *j*; X_{kl}: The export of other commodities by other countries.

The interpretation is similar to the *RCA* index.

The mentioned indexes are static. New indexes are expanded which have more consistency with new conception of competitive advantages. One of them is Trade Map (TM) introduced by International Trade Centre (ITC) and United Nations Conference on Trade and Development (UNCAD) and compares export growth to global demand growth. The groups of export commodities are classified into winners and losers based on *TM* and defined as Table 1.

Based on Table 1, if the global growth rate of import of commodity *i* (r_i) is bigger (less) than the growth rate of aggregated imports,

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the market of this commodity is identified as emerging (declining) market. If the export growth rate of country *j* at commodity *i* (d_{ij}) is bigger (less) that the import growth rate of this commodity (r_i), the country is winner (looser) on that commodity.

Market Structure

Market structure describes the organizational skills of a market such as sellers and buyers concentration, qualifications, and the degree of homogeneity of goods so that it is possible to determine the competitions between the market and the type of market -the competitive market and monopoly market- and also distinguish the nature of pricing. CR_n and *HHI* indices would be the best indices of market structure.

Concentration Ratio (CR)

The concentration ratio is the percentage of market share held by the largest firms (m) in an industry and can be defined as the following equation:

$$CR_n = \sum_{i=1}^{n} S_i \quad i = 1,...,k \quad k > n \quad (4)$$

Where, s_i is the market share and n defines the *i*th firm (UNCTAD, 2012).

Herfindahl–Hirschman Index (HHI)

Herfindahl- Hirschman index is the sum of the squares of market shares of all active firms in the industry. This index was very similar to Hirschman index except for the square root (Hirschman, 1964). It is calculated as follows (Řepková, 2012):

$$HHI = \sum_{i=1}^{n} S_i^2 \quad (5)$$

Si: the market share of country i in the market; N: the number of countries.

Types of market structure and characteristics are presented in Table 2 (Williams and Rosen, 1999):

In this study, the *RCA* and *RSCA* indices were used for evaluating the revealed comparative advantage of exports of stone fruits, including cherries, plum, apricot and peach from Iran between 1997 and 2010. Iran's position in the export of these crops among the world's major exporters is reviewed over time as well. In order to select the top stone fruits for Iran's export markets, statistical methods are used including screening, the main component, and numerical taxonomy in importer countries of the stone fruits.

Table 1. The Coordinates of Trade Mapping.

Coordinates	Property	Elucidation
First quarter	$d_{ij} > r_i > r$	Winners in emerging markets
Second quarter	$d_{ij} < r_i r_i > r$	Losers in emerging markets
Third quarter	$d_{ij} < r_i < r$	Losers in declining markets.
Fourth quarter	$d_{ij} < r_i r_i > r$	Winners in declining markets.

Table 2. Market Structure and their characteristics in terms of number and size of firms.

Type of Market	*CR* Index	HHI Index	The main feature of the market
Perfect competition	$CR_1 \rightarrow 0$	$HHI \rightarrow 0$	There are over 50 firms without considerable share of the market.
Monopolistic competition	$CR_1 < 10$	$(1/HHI) \rightarrow 10$	None of firms has more than 10% of share of the market.
Opened oligopoly	$CR_4 < 40$	$6 < (1/HHI) <= 10$	4 firms have maximally 40% of the market.
Closed oligopoly	$CR_4 > 60$	$3 < (1/HHI) <= 6$	4 firms minimally have 60% of the market.
Dominant firm	CR_1	$1 < (1/HHI) <= 3$	Over 50% of the market belongs to one firm.
Monopoly	$CR_1 \rightarrow 100$	$HHI \rightarrow 1$	Whole shared of the market belongs to one firm.

Source: Williams and Rosen (1999).

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The Prioritization of Target Export Markets

Screening

First, importing countries are prioritized according to potential indices of imports, since six indices are used in this study (Brewer, 2001).The average imports of commodity *i* by country *j*: $m_1 = \bar{M}_{ij}$ (6)The ratio of imports of the commodity *i* by country *j* to total world imports of the commodity (Brewer, 2001): y: $m_2 = \frac{M_{ij}}{M_{iw}}$ (7)The ratio of imports of commodity *i* by country *j* to total imports of country *j*: $m_3 = \frac{M_{ij}}{M_j}$ The index of disadvantage of country *j* for commodity *i*: $m_4 = \frac{M_{ij}/M_j}{M_{iw}/M_w}$ (8)

The average growth of imports of commodity *i* by country *j*: $m_5 = r.M_{ij}$ (9) (10)

$H_j = \sum_{k=1}^{5} \left[\frac{m_{kj} - m_j}{\delta_j} \right] / 5$ (11) Where, m_{kj} is index *k*th for country *j*, δ_i represents the standard deviation of indices for country *j* and H_j is the simple average of the standardized indices of the above. Using this method, specified and limited number of countries, whose H_j index is relatively the highest, are selected in the final prioritization.

Numerical Taxonomy

Numerical taxonomy is one of the most common methods of prioritizing the markets (Brewer, 2001). This method was introduced by Sokal and Sneath in 1963 and elaborated by the same authors in 1973. The method provides a scale to prioritize the markets by dividing a set into almost homogenous subsets.

In order to prioritize potential markets using the taxonomy approach, the following indices are used: The per capita import of the product (X_1), the average growth of products import during the studied period (X_2), the average economic growth (X_3), future population growth (X_4), geographical distance (X_5), investment to *GDP* ratio (X_6), average tariff rate (X_7), membership in trade agreements (X_8), per capita *GDP* (X_9).

In this study, the following data were gathered from the international websites of FAO and UNCOMTRADE: a) The export value of stone fruits -cherry, sour cherry, plum, apricot and peach- both for Iran and other countries; b) The amount and value of agricultural exports in Iran and the world, c) The amount and the exports value of stone fruits of Iran's commercial competitors.

RESULTS AND DISCUSSION

Status of Iran's Exports for Stone Fruits Dduring 1997-2010

Table 3 shows the value of exports for stone fruits including cherry, plum, apricot and peach and also their growth rates during 1997 to 2010.

From the total export value of stone fruits, 46.27% is allocated to the cherry, 19.12% to peach, 17.61% to apricot, and 17.07% is allocated to plum. Therefore, the main export of stone fruits belongs to the cherry in Iran.

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Table 3. The value (thousands of US dollars) and growth rate (percent) of exports of stone fruits in Iran during 1997-2010.

Year	Stone fruits		Peach		Apricot		Plum		Cherry		Iran's share from the world exports
	Growth	Value	Growth	Value	Growth	Value	Growth	Value	Growth	Value	
1997	-	275	-	105	-	53	-	18	-	99	0.016
1998	78.54	491	65.71	174	152.83	134	72.22	31	53.53	152	0.029
1999	166.39	1308	160.34	453	92.53	258	93.54	60	253.29	537	0.079
2000	-28.28	938	-36.20	289	1.55	262	-35	39	-35.19	348	0.058
2001	-2.13	918	22.83	355	-17.17	217	-15.38	33	-10.05	313	0.051
2002	-28.43	657	-61.97	135	-3.22	210	33.33	44	-14.37	268	0.035
2003	28.91	847	111.85	286	-4.28	201	50	66	9.70	294	0.035
2004	-40.14	507	-73.77	75	-26.36	148	-57.57	28	-12.92	256	0.021
2005	420.90	2641	1361.33	1096	183.78	420	1728.57	512	139.45	613	0.099
2006	239.07	8955	-0.27	1093	365.71	1956	77.34	908	721.85	5038	0.292
2007	-67.90	2874	-92.77	79	-73.61	516	-81.27	170	-58.05	2113	0.084
2008	-0.73	12646	-55,31	1318	152,54	4177	23,06	2145	-21,70	5006	0,0031
2009	-	-	-	-	-	-	-	-	-	-	-
2010	27.08	16071	32.09	1741	-61.02	1628	125.22	4831	57.23	7871	0,0035
Mean	75,35		141.26		67.95		182.43		98.73		0.0620

Reference: FAO and Uncomtrade, research findings.

Total value of Iran's cherry export was $27,3 Min 1997-2010. The export growth rate of this fruit was accompanied by fluctuations. The average of annual growth rate of cherries was 98.73% and showed a positive growth in Iran's exports over time. The exports value of plum was 10,397 thousand US dollars ($10.97 M), with the average growth rate of 182.43% during 1997-2010. Iran's apricot export in the study period was 11,287 thousand US dollars with an average growth rate of 67.95% , showing a relatively lower average growth, in spite of the positive growth rate, of apricot compared to the other stone fruits. Total value of peach exports was 10,078 thousand dollars, with the average growth rate of 141.26% and an increasing rate over time.

In total, Iran's stone fruits export value during the study period was 59,028 thousand US dollars, with the average annual growth rate of 75.35% in 1997–2010. The highest export values among the stone fruits were cherry, apricot, plum, and peach, respectively. The highest annual growth in export value belonged to plum, peach, cherry, and apricot, respectively. It should be noted that sour cherry is not included in the Iran's exports. Averagely, Iran's share from the world exports of total stone fruits is 6.2%. Probably, low share of Iran in the global market is due to the high domestic consumption as well as the high price of these products.

RCA and *RSCA* Indices of Stone Fruits Exports of Iran in 1997-2010

Table 4 shows export's revealed comparative advantage of stone fruits of Iran calculated by *RCA* and *RSCA* indices over time. Based on *RCA* and *RSCA* indices, the values of these indexes for cherry indicate that Iran had exports' revealed comparative advantage only in 2006. The results of *RXA* index also demonstrate that Iran had an export comparative advantage in the export of peaches in 2006 and 2007, in the export of apricots in 2006 and 2008, and in the export of plum in 2010; and generally in the export of stone fruits in 2007 and 2010. The maxima belonged to apricots, cherries, plums, and peaches, respectively. For all these products, disadvantage gradually has declined over time. In other words,

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Table 4. Comparative advantage indices of stone fruit exports in Iran during 1997-2010.

Product	Index	1997	1998	1999	2000	2001	2002	2003	2004
Cherry	*RCA*	0.0971	0.2441	0.4282	0.2338	0.2301	0.1599	0.1338	0.0885
	Growth	-	151.38	75.39	-45.4	-1.57	-30.52	-16.29	-33.85
	RSCA	-0.8229	-0.6074	-0.4002	-0.6209	-0.6257	-0.7242	-0.7638	-0.8372
	RXA	0.0971	0.2443	0.4289	0.2341	0.2304	0.1600	0.1339	0.0886
Plum	*RCA*	0.0161	0.0411	0.0496	0.0302	0.0247	0.029	0.0342	0.0141
	Growth	-	155.22	20.59	-39.1124	-18.1857	17.35	17.93	-58.86
	RSCA	-0.9682	-0.92089	-0.9053	-0.9413	-0.9517	-0.9435	-0.9337	-0.9722
	RXA	0.0161	0.0412	0.0497	0.0302	0.0247	0.0290	0.0342	0.0141
Peach	*RCA*	0.0338	0.07551	0.1495	0.0786	0.0962	0.0318	0.0489	0.0135
	Growth	-	122.81	98.07	-47.44	22.44	-66.9	53.81	-72.29
	RSCA	-0.9344	-0.8595	-0.7397	-0.8542	-0.8244	-0.9382	-0.9065	-0.9732
	RXA	0.0339	0.0755	0.1496	0.0786	0.0962	0.0318	0.0489	0.0136
Apricot	*RCA*	0.0907	0.3099	0.4214	0.3826	0.3386	0.2683	0.2272	0.1423
	Growth	-	364.57	23.48	-19.64	-29.87	-32.89	-46.96	26.92
	RSCA	-0.8336	-0.5268	-0.4071	-0.4464	-0.494	-0.5768	-0.6296	-0.7507
	RXA	0.0907	0.3101	0.4221	0.3911	0.3391	0.2687	0.2275	0.1425
Stone fruits	*RCA*	0.0472	0.1194	0.2143	0.1313	0.1306	0.08	0.078	0.0443
	Growth	-	152.59	79.48	-38.7	-0.59	-38.75	-2.38	-43.27
	RSCA	-0.9097	-0.7866	-0.647	-0.7677	-0.7689	-0.8518	-0.8551	-0.9151
	RXA	0.0887	0.2132	0.4325	0.2554	0.2491	0.1551	0.1452	0.0918

Product	Index	2005	2006	2007	2008	2009	2010	Mean
Cherry	*RCA*	0.1635	1.0761	0.4118	0.7289	-	0.8769	0.3748
	Growth	84.67	558.05	-61.73	77	-	20.30	64.8
	RSCA	-0.7189	0.0367	-0.4165	-0.1568	-	-0.0656	-0.5172
	RXA	0.1637	1.1101	1.2457	0.7347	-	0.9391	0.4151
Plum	*RCA*	0.19	0.2889	0.0445	0.4568	-	0.9816	0.1693
	Growth	1249.148	52.0361	-84.5925	926.52	-	114.89	195.97
	RSCA	-0.6806	-0.5516	-0.9147	-0.3729	-	-0.0093	-0.7743
	RXA	0.1902	0.2700	0.4666	0.4595	-	1.0527	0.1913
Peach	*RCA*	0.1459	0.1084	0.0073	0.0883	-	0.1134	0.0762
	Growth	974.94	-25.68	-93.25	1109	-	28.43	175.88
	RSCA	-0.7453	-0.8043	-0.9854	-0.8377	-	0.7963-	-0.8615
	RXA	0.1459	0.1093	0.2724	0.0886	-	0.1208	0.0904
Apricot	*RCA*	0.2884	1.0248	0.2705	1.6100	-	0.5973	0.4594
	Growth	619.88	-6.2	-100	495.19	-	62.90-	75.02
	RSCA	-0.5522	0.01227	-0.574	0.2337	-	-0.2521	-0.4460
	RXA	0.2889	1.0153	0.8683	1.6329	-	0.6385	0.4739
Stone Fruits	*RCA*	0.1713	0.454	0.1335	0.4349	-	0.5026	0.1955
	Growth	286.82	164.91	-70.6	225.77	-	15.57	60.93
	RSCA	-0.7073	-0.3754	-0.7644	-0.3938	-	-0.3310	-0.6980
	RXA	0.3523	0.8969	1.1858	0.8549	-	1.1239	0.4318

Reference: Research findings.

comparative advantage growth trend is considerable.

Iran's share of global exports of stone fruits indicates that *RCA*, *RSCA* and *RXA*'s changes are related to the changes of exports values. Consequently, Iran's share of global exports is such that whenever Iran's share of global exports increases (or decreases), the mentioned indices increase (decrease) as well. Thus, Iran can increase its revealed comparative advantage by enhancing the share of export.

Investigating comparative advantage index in the stone fruits export of Iran illustrates

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the fact that Iran has a potential to achieve the comparative advantage for stone fruits export, as evidence by this advantage in some products in certain years. Perhaps, the loss of comparative advantage is due to the lower production within the country, or due to some specific trade policies during a special period of time.

Table 5 shows Trade Mapping and competition situation of Iran in the global markets. The exogenous factors that may cause reduction or loss of the comparative advantage of exports include the increase in the production of other countries, trade agreements of other countries with the applicant countries for reducing trade barriers thereby increasing the export share, and the problems due to the entry of these goods in the importing countries.

Trade mapping analysis for export markets of Iran's stone fruits indicates that, although the export market for these products has declined during the period studied, Iran has taken a greater share of the market and is among the winner groups.

Evaluation of Iran's Commercial Competitors in Stone Fruits Exports

As shown in Table 6, in the cherry's export, Iran's principal commercial competitors are The USA, Turkey, Austria, Chile, Spain, Italy, France, the Netherlands, Belgium and Greece. Iran ranks twenty-fifth in the exports of cherry. In plum's export, Chile, Spain, the USA, the Netherlands, Italy, South Africa, France, Argentina, Belgium, and Australia are the major exporters in the world, respectively, and Iran ranks 45th. Moreover, in the exports of peach, Spain, Italy, the USA, France, Chile, Greece, the Netherlands, Australia, and Turkey are the main commercial competitors and Iran ranks 45th again. France, Spain, Italy, Greece, the USA, Uzbekistan, the Netherlands, Turkey, Bangladesh and South Africa are the main exporters of apricots and Iran ranks 26th. In general, Spain, Italy, the USA, France, Chile, Turkey, the Netherlands, Greece, Belgium and Australia

Table 5. World import growth, the growth of world stone fruits import and the growth of Iranian stone fruits export percent-trade mapping index (TM).

	World import growth (%)	The growth of world stone fruits import (%)	The growth of Iranian stone fruits export (%)	Assessment
1997	-	-	-	-
1998	-0.89	-3.25	78.55	Winners in declining markets.
1999	4.18	-0.33	166.40	Winners in declining markets.
2000	13.6	-5.63	-28.29	Winners in emerging markets
2001	-3.93	13.7	-2.13	Losers in emerging markets
2002	4.39	-0.82	-28.43	Winners in emerging markets
2003	16.41	32.09	28.92	Losers in emerging markets
2004	22.74	1.82	-40.14	Winners in emerging markets
2005	13.11	9.83	420.91	Winners in declining markets.
2006	16.14	18.27	240.40	Losers in declining markets.
2007	15.14	8.13	41.70	Winners in declining markets.
2008	15.87	21.11	-0.73	Losers in emerging markets
2009	-22.81	-13.63	_	-
2010	21.45	15.96	27.08	Winners in declining markets.
Mean	11.52	7.48	75.35	Winners in declining markets.

Reference: Research findings.

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Table 6. Iran's main competitors in the export of stone fruits during 1997-2007. (Unit: Thousand dollars).

Stone Fruits	Country	Peach	Country	Apricots	Country	Cherry	Country	Plum	Country
5376672	Spain	3851609	Spain	767152	France	1894647	The USA	734743	Chile
4269647	Italy	3486624	Italy	488592	Spain	700576	Turkey	708174	Spain
3934370	The USA	1268281	The USA	188208	Italy	449625	Austria	673728	The USA
2434023	France	1177398	France	122224	Greece	430563	Chile	334658	The Netherlan
1991280	Chile	820491	Chile	97714	The USA	328297	Spain	325520	Italy
1189738	Turkey	516985	Greece	84777	Uzbekistan	269295	Italy	299183	South Africa
747030	The Netherlands	229145	The Netherlands	63494	The Netherlands	231131	France	258342	France
738911	Greece	146341	Belgium	60410	Turkey	119733	The Netherlands	128947	Argentina
575742	Uzbekistan	127743	Australia	47035	Bangladesh	103001	Belgium	120839	Belgium
432802	South Africa	109944	Turkey	45961	South Africa	87622	Greece	120682	Australia
416107	Belgium	88015	Germany	37850	New Zealand	76231	Canada	60851	Germany
260203	Australia	86244	South Africa	37009	Belgium	70100	Syria	56506	Hungary
232540	Argentina	59261	Argentina	35779	Chile	66995	Germany	53996	Hong Kong
120456	Germany	47778	Poland	32441	Germany	64205	Australia	44043	Uzbekistan
187659	Syria	47247	Uzbekistan	21141	Hungary	52578	New Zealand	42738	Syria

Reference: Research results and Uncomtrade , FAO's sites.

are the main exporters in stone fruits in the world and Iran's rank is 35th.

Determination of Structure of Export Market for Stone Fruits

According to Table 7, the number of stone fruits exporters has increased from 82 countries in 1997 to 102 countries in 2007. The whole value of exports in stone fruits has increased with fluctuations in some years as well so that its value increased from 1,753,363 thousand dollars in 1997 to 3,401,119 thousand dollars in 2007. *CR* and Herfindahl–Hirschman indices are bounded on 3 to 10 and 11 to 15, respectively.

Thus, none of competitions agents has more than 10% of the market's share and the structure of exports market is monopolistic competition.

Determination and Prioritization of Exports' Target Markets of Stone Fruits in Iran

To introduce the best potential target markets, at first, all countries that import stone fruit were identified, and the number of importing countries decreased from 87 to 60 countries based on the indicators of market potential. Then, using the indicators of market attractiveness, 44 countries were placed among Iran's stone fruit export target markets, selected by the screening method i.e. after omitting sixteen non-homogenous countries out of 60, the countries were ranked based on their priority index. The results are presented in Table 8.

According to Table 8, Germany, U.K, France, Italy, the Netherlands, Russia, Saudi Arabia, Bahrain, Switzerland, the UAE, Afghanistan, Iraq, Azerbaijan, Kuwait, Pakistan, Denmark, Japan, Sweden, Finland, and Turkmenistan are the main potential exports markets of stone fruits. Among them, Russia, France, Germany, Saudi Arabia, Bahrain, the UAE, Afghanistan, Iraq, Azerbaijan, Pakistan and Turkmenistan are the biggest global importers of Iran's stone fruits over time. In addition, there have been exportations to Bahrain, Bulgaria, Qatar, Ireland, Kazakhstan and Greece by Iran, whereas these countries are not among the main target market of Iran's stone fruits. Thus, in the export of stone fruits, regarding the prioritization, some purposeful policies should be adopted. Moreover, U.K, France, Italy, Switzerland, Denmark, Japan and Finland are countries that have not had any exported stone fruits overtime, despite the fact that they are in priority order. So, it can be acclaimed that there are some potential target countries which the exporters can penetrate their markets.

Considering that now the main export markets of Iran's stone fruits are the UAE, Russia, Iraq, Bahrain, Kuwait, Bulgaria, Afghanistan, France, Qatar, Ireland, the

Table 7. Export trade structure of stone fruits during 1997-2007.

The measurement indexes of export structure			Market variables		Year
Market structure	1/HHI	CR	Value export thousand dollar	Total exports	
Monopolistic competition	14.91	3.73	1753363	82	1997
Monopolistic competition	15.61	5.022	1713751	89	1998
Monopolistic competition	13.74	3.33	1644728	91	1999
Monopolistic competition	14.03	4.12	1606526	96	2000
Monopolistic competition	13.26	4.31	1799088	94	2001
Monopolistic competition	12.57	4.38	1873404	96	2002
Monopolistic competition	14.28	4.44	2398625	106	2003
Monopolistic competition	11.15	5.51	2375879	107	2004
Monopolistic competition	12.08	5.96	2662820	103	2005
Monopolistic competition	12.86	7.034	3078424	103	2006
Monopolistic competition	11.84	9.63	3401119	102	2007

CR: Concentration Ration; HHI: Herfindahl-Hirschman Index.

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Table 8. The prioritization of export's target markets of stone fruits, based on market attractiveness indices.

	Country	PC[a]		Country	PC		Country	PC
1	Germany	0.572860	16	Denmark	0.782636	31	Spain	0.849662
2	England	0.807665	17	Japan	0.787911	32	Albany	0.840177
3	France	0.676062	18	Swedish	0.789602	33	Estonia	0.854823
4	Italy	0.678748	19	Finland	0.799554	34	Czech	0.858995
5	The Netherlands	0.688605	20	Turkmenistan	0.800006	35	Bosnia	0.862328
6	Russia	0.69085	21	Ireland	0.801223	36	Malaysia	0.860642
7	Saudi Arabia	0.716776	22	Slovenia	0.805812	37	Oman	0.875158
8	Bahrain	0.738759	23	Turkey	0.80766	38	Thailand	0.886533
9	Switzerland	0.730049	24	Norway	0.814207	39	Lebanon	0.908789
10	The UAE	0.750625	25	Ukraine	0.814322	40	Qatar	0.913858
11	Afghanistan	0.755089	26	Bulgaria	0.821369	41	New Zealand	0.937917
12	Iraq	0.760348	27	Poland	0.823534	42	Egypt	0.943539
13	Azerbaijan	0.762081	28	Romania	0.824495	43	Slovakia	0.964085
14	Kuwait	0.769489	29	Greece	0.834946	44	Island	0.982677
15	Pakistan	0.780533	30	Belarus	0.836677			

[a] Prioritization's Coefficient.

Netherlands, Kazakhstan, Turkey, Turkmenistan, Saudi Arabia, Azerbaijan, Ukraine, Germany, Pakistan, Sweden and Greece, the results of prioritization of exports target markets show that exports do not follow a systematic strategy and are mainly affected by political and diplomatic relations.

CONCLUSIONS

The results of export comparative advantage indices for all kinds of stone fruits in Iran suggest that there was a comparative advantage of these products in the years of the study (1997-2010), and the rate of growth was positive in most of the years. However, based on the trade mapping analysis, the export market for these products has declined over the study period, but Iran took a larger share of this market, and it is in the winners group. Hence, in order to have a comparative advantage for stone fruits in the export market in Iran and its continuing presence in the world markets, the followings are recommended. Since there is a direct relation between export comparative advantage and the amount of exports of these products and the amount of export is dependent on the domestic production, based on the results, fluctuations of domestic production should be reduced. These fluctuations occur because of the price clutter relations within the country and due to the government intervention in the market. Therefore, regulating guarantee prices and tariffs should be done in a way that their effect on relative prices is taken into account, in order that it guarantees an ongoing production. Special attention to increasing productivity and reducing costs via improved varieties, proper mechanization, enhanced quality and production methods can be considered as appropriate actions or solutions to improve the position of exporting products amongst commercial competitors. In addition, commercial production status and behavior of competitor countries need to be fully monitored by manufacturers, exporters, and domestic decision makers to deal with the

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effects of externalities. Furthermore, timely and appropriate responses should be done to improve the competitive position of these products in the target markets.

The observance of health standards of the target countries can help to compliance with the structure of export markets. Therefore, it is necessary to export stone fruits in accordance with the health standards of the target countries and especially European Union. This can be fulfilled through promotional plans and educating farmers' activities according to the international markets, food hygiene legislation for agricultural products (in codex international level), increased investment in the health control laboratories, and also the packing of products for foreign markets. According to the study results, not all the countries qualify as target market. Therefore, it is recommended to penetrate those markets by accurate systematic plan coupled with increasing competition and competitiveness. For this purpose, the exporter of various stone fruits should select the proper number of the priority markets and infiltrate these markets by awareness of the competitors, rules and regulations of marketing, and by having a coherent marketing plan. Besides, small businesses can resolve probable marketing and financial support problems by observing the terms of the companies with famous brands.

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شناسایی و اولویت بندی بازارهای هدف صادرات میوه های هسته دار ایران

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چکیده

این مطالعه با هدف بررسی وضعیت صادراتی میوه های هسته دار ایران طی سالهای ۱۹۹۷ تا ۲۰۱۰ انجام شده است. روند صادرات این محصولات و شاخص های مزیت نسبی RCA و RSCA برای انواع میوه های گیلاس، آلو، هلو و زردآلو محاسبه و بررسی شده است. سپس به اولویت بندی بازارهای هدف صادراتی این محصولات با روش تاکسونومی پرداخته شد. نتایج نشان می دهد ایران تنها در سال ۲۰۰۶ از مزیت نسبی صادراتی برای محصولات گیلاس و زردآلو برخوردار بوده و به طور کلی در هیچیک از سالهای مورد بررسی در صادرات میوه های هسته دار مزیت نسبی صادراتی نداشته، اما این شاخص طی سالهای مورد بررسی برای تمامی انواع میوه های هسته دار از رشد مثبت برخوردار می باشد، به عبارت دیگر وضعیت صادراتی این محصولات رو به بهبود می باشد. مهمترین بازارهای هدف صادرات این محصولات نیز به ترتیب اولویت کشورهای آلمان، انگلیس، فرانسه، ایتالیا، هلند، روسیه، عربستان، بحرین، سوئیس، امارات و افغانستان هستند. که در بین این کشورها در حال حاضر روسیه، فرانسه، آلمان، عربستان، بحرین، امارات و افغانستان جزء بزرگترین واردکنندگان این نوع محصولات از ایران می باشند.

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