

Evaluating barriers to exporting seafood in Iran

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ABSTRACT

In order to improve the seafood export by searching in library resources as well as interviewing experts, the export barriers were identified and listed. After designing the questionnaire, its validity was confirmed by the exporters and experts. After completing the questionnaire, the data was analyzed by 35 statistical samples using Garrett ranking method. The most important barriers affecting the export of seafood include in priority weak export and marketing infrastructure, weak global and regional convergence, lack of appropriate and sustainable support policies, inefficiency of the banking system for export, sanction, ignoring production to international market preferences and etc. Thus, the government can support export by strengthening the market infrastructure, reforming the banking system, engaging the world and lifting sanctions, controlling inflation, branding, reforming the rules of the export barriers ahead.

Keywords: Trade, Problems, Garrett's ranking, Fishery products, Iran.

INTRODUCTION

Exports are an important part of the economy of countries and the source of providing foreign income to invest in new technologies and increase the productive capacity of the country's economy. Trade is a tool for expanding the domestic market, dividing labor, increasing efficiency and productivity, and is one of the factors of the independence of countries (Farhadi 2004). In many advanced countries, exports are the main focus of development and the importance and necessity of the presence of goods made by a country in the global market and the international economic is one of the most important factors of development.

One of the most important problems in developing countries is the uniqueness and dependence of their economies on the export of raw materials, which has negative effects on the economic, political, social and even cultural structures (Mehnatfar & Khakpour 2005). Iran's foreign trade is heavily dependent on foreign exchange income from oil exports, so that if the oil revenues are eliminated in the trade balance calculation, the trade balance will be negative for all years. This fact reflects Iran's reliance on oil exports for currency income. Therefore, Iran's dependence on oil and oil products is one of the main problems that have always been taken into account in the country's developmental plans for its lack of dependence, different policies and strategies, including the development of non-oil exports (Paseban 2007). The necessity of avoiding single-product exports and getting rid of the resulting problems, diversifying export products, providing currency for investment, and increasing the share of global trade and international markets, highlights the importance of non-oil exports. Fisheries is one of the most important economic subsectors in providing food security, employment, entrepreneurship, and prevent deprivation, which has a special place in business and in the field of valuation (Adeli 2014). In addition, since fishery resources can be renewed, they can play an important role in non-oil exports of the country (Naimifar 2009).

In many of the developing countries, fish export is a significant source of foreign exchange income helping to stabilize macroeconomic indices and presents nutrition and food security these countries (Dey *et al* 2002). Seafood estimated decrease poverty in around 37% of production value entering international trade. This share is the highest among food commodities as compared to 9.8% for meat and 6.7% for milk and dairy products. Considering the ratio between seafood trade and domestic availability, it was evaluated that 77% of world seafood production is exposed to trade competition (Tveteras *et al* 2012).

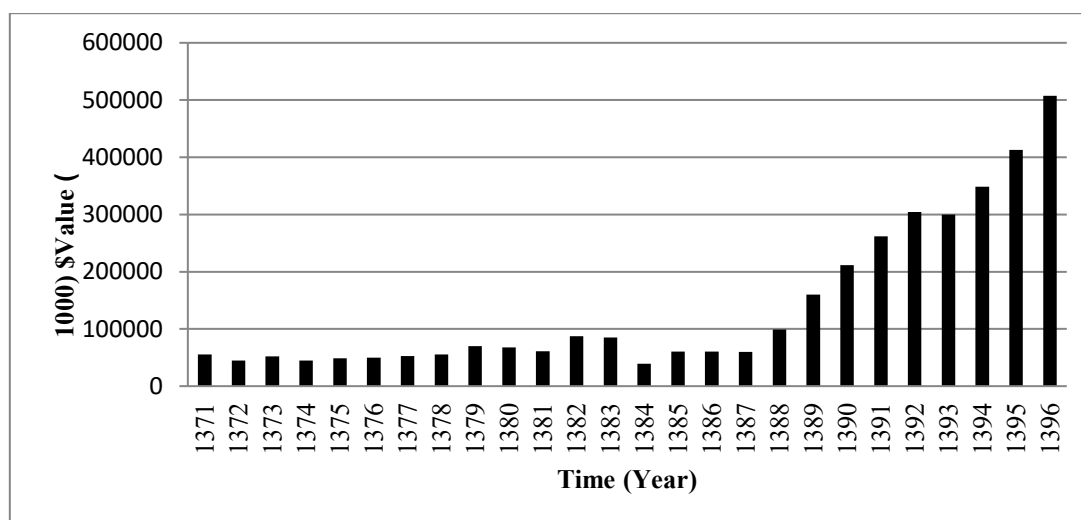


Fig. 1. Trend of seafood export value in Iran.

Iran's fisheries have a lot of potential for export, and if there is proper planning in this sub-sector, various goals can be achieved (Mortazavi *et al* 2014). Fisheries are an important source of income and food for many people on the northern and southern coast of the country and this sub-sector as one of the important agricultural areas plays a significant role in promoting the country's economic goals (Eskandari & Zeraatkish 2016). Trading in this sub-sector can take advantage of its empty capacity and as exports grow, more human resources are used for different parts of its production and exports, and levels of income and employment increase. Therefore, markets are expanding and subsequently facilitating by the economic developmental trend.

Global fisheries production in 2018 was 178.7 million tons. The share of exports to production was 34% (Glob fish 2018). In 2014, the top three exporters of fishery products were China (21 million tons), Norway (11 million tons), and Vietnam (8 million tons). China accounts for approximately one-third of global exports. Fisheries trade is a vital source of foreign exchange for many developing nations (FAO 2016). Developing countries face barriers to exporting to developed countries due to the latter's evolving import requirements, which can be difficult for developing countries to consistently meet while maintaining production (FAO 2016).

In 2017, Iranian fishery exports reached 107,000 tons, valued at \$507 million. Caviar, historically a key export, saw its export volume drop to under 10 tons in 2007. Before a 2011 CITES export ban, caviar was the primary source of export revenue for Iranian fisheries. Currently, shrimp is Iran's most valuable fishery export after caviar. FAO statistics indicate Iran is a major shrimp producer in Asia with significant potential for further growth in production and export (Ardakani *et al* 2011). The share of farmed shrimp production is about 74.3% of the 43578 tons of total shrimp produced in 2017. Which 57% then exported and the rest of them were consumed inside the country (IFO, 2017). To boost fishery product exports, improvements to fisheries production and increased consultation with neighboring countries are crucial. Currently, Iran's 1.2 million tons of fisheries production represents less than 0.7% of global output, with only 11.4% being exported (IFO, 2017). Greater attention to export potential is needed to enhance value. This study investigates barriers to non-oil exports, specifically fishery products, to inform better export strategy decisions by authorities. Van Nam (2005) found that stringent and varied US trade barriers require Vietnamese seafood exporters to prioritize these restrictions for a strong presence in US markets. Sedaghat (2011) identified Aflatoxin standards, fluctuating export policies, and inconsistent supply as

key obstacles to Iranian pistachio production and marketing, from the perspective of traders and exporters. Mehnatfar & Khakpour (2005) concluded that non-oil exports positively and significantly impacted Iran's economic growth between 1976 and 2009.

Instances of *Vibrio parahaemolyticus*, a common microorganism in coastal waters, have led to the rejection of Indian seafood exports to the EU, particularly Italy and France (Meenakshi 2008). Tuu & Olsen (2013) found that product, price, distribution, and logistics barriers significantly negatively impact the export performance of Vietnamese seafood companies, while promotion barriers did not. Rezaie Gashti *et al.* (2013) suggest that export barriers are generally similar across different economic sectors and countries, relating to: lack of export knowledge and market information; international transportation costs; and legal barriers in both the origin and target countries. Gururaj *et al.* (2016) found that inflation, the real effective exchange rate (REER), and foreign direct investment (FDI) negatively affect India's export performance. Ai *et al.* (2015) identified numerous difficulties in foreign trade, including: lack of awareness of export opportunities (data barriers); administrative and human resource limitations; fiscal and investment barriers; production and technical barriers; competitive and distributive barriers; official regulations; and payment barriers; currency price barriers; regulatory (regulations) barriers; and governmental and cultural barriers. They also stated that Vietnam lacks understanding of the international market.

MATERIALS AND METHODS

This research employed a case study approach (Khalili Shavarini 2014), initially using library resources and statistical analysis to study documentary resources and content. Subsequently, barriers to seafood exports were identified through library research and interviews with fishery product experts, managers, and exporters. These barriers were then incorporated into a questionnaire. The questionnaire included a demographic section (respondent's name, education level, degree, age, work experience, and job title) and a main section containing 25 questions about export barriers. Respondents ranked these barriers from 1 (highest priority) to 25 (lowest priority). The questionnaire was distributed to seafood exporters nationwide and key personnel within the seafood industry, specifically including offices focused on quality improvement and fish market development within Iran's fisheries organization, as well as related senior managers. The Garrett Ranking method (Dhanavandan 2016) was used for data analysis.

$$\text{Position rate (\%)} = \frac{100(R_{ij}-0.5)}{N_j}$$

R_{ij} = Rank given for the i th variable by the j th respondent

N_j = number of variables ranked by the j th respondent

With 25 questionnaires in the effective barriers section ($N_j = 25$), R_{ij} ranges from 1 to 25. Garrett's scores are calculated from these rankings based on Table 1. Subsequently, each barrier's ranking abundance is multiplied by its corresponding rank number, and the percentage of total points for each factor is determined. A higher percentage indicates a higher rank, while a lower percentage indicates a lower rank.

RESULTS AND DISCUSSION

Table 2 shows the demographic characteristics of the 35 respondents, including 13 exporters (37.1%) and 23 experts, officials, and executive managers related to fish product exports (62.2%). Ages ranged from 30 to 63 years, with an average of 49 years and peak frequencies at 48, 54, and 57 years (34.2% total). Work experience varied from 10 to 39 years, averaging 24.9 years. Respondents' fields of study included humanities (34.3%), fisheries (28.6%), engineering, agriculture, and other fields. The majority held bachelor's degrees (45.7%).

Table 2. Conversion of rank to Garrett.

Rate (%)	Score	Rate (%)	Score	Rate (%)	Score	Rate (%)	Score	Rate (%)	Score
0.09	99	6.81	79	32.42	59	71.14	39	94.49	19
0.2	98	7.55	78	34.25	58	71.85	38	95.08	18
0.32	97	8.33	77	36.15	57	74.52	37	95.62	17
0.45	96	9.17	76	38.06	56	76.12	36	96.11	16
0.61	95	10.06	75	40.01	55	77.68	35	96.57	15
0.78	94	11.03	74	41.97	54	79.17	34	96.99	14
0.97	93	12.04	73	43.97	53	80.61	33	97.37	13
1.18	92	13.11	72	45.97	52	81.99	32	97.72	12
1.42	91	14.25	71	47.98	51	83.31	31	98.04	11
1.68	90	15.44	70	50	50	84.56	30	98.32	10
1.96	89	16.69	69	52.02	49	85.75	29	98.58	9
2.28	88	18.01	68	54.03	48	86.89	28	98.82	8
2.69	87	19.39	67	56.03	47	87.96	27	99.03	7
3.01	86	20.93	66	58.03	46	88.97	26	99.22	6
3.43	85	22.32	65	59.99	45	89.94	25	99.39	5
3.89	84	23.88	64	61.94	44	90.83	24	99.55	4
4.38	83	25.48	63	63.85	43	91.67	23	99.68	3
4.92	82	27.15	62	65.75	42	92.45	22	99.8	2
5.51	81	28.86	61	67.48	41	93.19	21	99.91	1
6.14	80	30.61	60	69.39	40	93.86	20	100	0

Table 3. Demographic of sample statistic.

Variable	Position	Frequency (%)	Variable	Position	Frequency (%)
Number of samples	Exporter	11	Field of study	Fisheries	28.6
	Expert	24		Engineering	8.6
Age	30-35	9.3		Agriculture	5.7
	36-40	0		Humanities	34.3
	41-45	6.2		Others	14.3
	46-50	34.3		Missing	8.6
	51-55	21.8	Work experience	10-15	12.4
	56-60	21.6		16-20	15.6
Education level	60<	6.2		21-25	28.1
	Bachelor	45.7		26-30	21.9
	Ms.c	20		31-35	15.5
	Doctorate	25.7		36-40	6.2
	Missing	8.6			

According to the method of work and the use of the Garrett ranking formula for barriers affecting exports, Table 4 was obtained.

Table 4. Percent position and Garrett value.

No	Calculation	Response	Garrett	No	Calculation	Response	Garrett
1	$100(1-0.5)/25$	2	89	14	$100(14-0.5)/25$	54	48
2	$100(2-0.5)/25$	6	80	15	$100(15-0.5)/25$	58	46
3	$100(3-0.5)/25$	10	75	16	$100(16-0.5)/25$	62	44
4	$100(4-0.5)/25$	14	71	17	$100(17-0.5)/25$	66	42
5	$100(5-0.5)/25$	18	68	18	$100(18-0.5)/25$	70	40
6	$100(6-0.5)/25$	22	65	19	$100(19-0.5)/25$	74	37
7	$100(7-0.5)/25$	26	63	20	$100(20-0.5)/25$	78	35
8	$100(8-0.5)/25$	30	60	21	$100(21-0.5)/25$	82	32
9	$100(9-0.5)/25$	34	58	22	$100(22-0.5)/25$	86	29
10	$100(10-0.5)/25$	38	56	23	$100(23-0.5)/25$	90	25
11	$100(11-0.5)/25$	42	54	24	$100(24-0.5)/25$	94	20
12	$100(12-0.5)/25$	46	52	25	$100(25-0.5)/25$	98	11
13	$100(13-0.5)/25$	50	50				

Then, the frequency of each of the barriers to effective exports was as shown in Table 5. Table 6 indicates that key barriers to fishery product exports include inadequate export and marketing infrastructure, limited global and regional integration, insufficient support policies, an inefficient banking system, trade sanctions, neglect of international market preferences, non-membership in the WTO and strong regional organizations, inflation, weak branding, inappropriate internal regulations, poor coordination among export organizations, lack of market and distribution knowledge, and insufficient reserves of quality raw materials.

Key impediments to Iranian seafood exports include inadequate export and marketing infrastructure, poor global and regional integration, and a lack of effective and consistent support policies. While inflation ranked eighth among export barriers in this study, previous research in India (Gururaj *et al.* 2016) found a negative correlation between inflation and export value. Similarly, Tandel & Maheta (2018) identified storage and transportation facilities as major constraints for Gujarat shrimp marketers, a finding echoed by Ortega (2003) regarding general infrastructure. Tesfom & Lutz (2006) and Nabil & Vezanones (2004) also cited insufficient export facilities, incentives, and awareness of international market regulations as significant factors impacting the seafood industry. In contrast, this research placed warehouse and storage facility weaknesses lower (23rd) among export barriers. Sedaghat (2011) identified fluctuating government export policies and inconsistent production supply as critical barriers to Iranian pistachio exports. These findings align with the observation that weak export/marketing infrastructure, poor global/regional convergence, and a lack of consistent support policies are major obstacles to fisheries product exports, mirroring barriers related to exporter support, market knowledge, and marketing identified by Altintas *et al.* (2007).

In addition to shifting consumer preferences, companies face export barriers, including dealer/agent networks, import tariffs, financial risks in foreign markets, and safety/quality standards (Rabino 1980). Developing countries particularly struggle with regulatory hurdles like food safety, quality, composition standards, and labeling (Dey *et al.* 2002). Implementing Good Agricultural Practices can improve product quality and productivity, facilitating access to developed markets for higher profits (Viet & Thanh 2014). Furthermore, export venture management and adaptation to foreign market needs significantly impact export marketing performance (Julian & Ahmed 2005).

Table 5. Preference and Ranking of export barriers

Barriers/Frequency Rank given by the respondents	1 st	2 nd	3 th	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th	16 th	17 th	18 th	19 th	20 th	21 th	22 th	23 th	24 th	25 th
Weak infrastructure of export and marketing	12	5	1	4	2	0	3	1	1	2	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0
Weak convergence of global and regional	4	5	5	7	1	1	3	1	2	0	1	1	0	0	0	0	0	0	1	0	3	0	0	0	0
Lack of membership in WTO and strong regional organizations	2	5	6	4	3	1	2	1	0	1	0	1	0	0	1	1	0	3	0	1	0	0	0	2	1
Inefficiency of the banking system for export	1	7	4	4	2	3	4	3	2	1	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0
Lack of appropriate and sustainable support policies	1	4	11	3	3	3	1	2	2	1	0	0	1	0	2	0	0	0	0	0	0	0	0	1	0
Traditional production practices	0	4	4	5	2	3	1	2	1	2	1	0	0	3	0	0	2	0	0	0	2	1	0	1	1
Increase of domestic consumption	3	0	3	2	1	3	0	2	0	2	2	1	0	0	0	0	0	0	1	1	2	1	3	3	5
Unfamiliar with market and international distribution system	1	1	3	4	6	2	2	1	3	2	1	0	2	0	3	0	0	2	0	0	0	1	1	0	0
Intense competition and lack of understanding of the moves of global rivals	0	0	5	7	4	0	1	3	3	1	2	0	0	0	0	0	3	0	0	3	1	1	1	0	0
Sanction	4	5	1	2	4	2	3	3	2	1	1	0	1	2	0	3	0	0	0	0	0	0	1	0	0
Lack of adequate understanding of seafood market standards	0	1	4	4	1	6	2	1	1	1	1	0	0	0	0	0	0	1	2	1	2	0	6	1	0
Ignoring production to international market preferences	0	6	4	2	1	2	5	7	1	1	0	2	0	0	0	0	0	0	2	0	1	0	0	1	0
High cost of production compared to world prices	3	4	2	2	3	3	0	2	1	2	2	0	0	0	0	0	0	3	4	1	0	0	0	1	2
Irrational support of production	2	1	5	3	4	0	1	2	2	1	2	2	1	0	0	2	2	0	1	1	1	1	1	0	0
Incoordination of export-related organizations in the country	1	3	4	2	2	3	2	3	5	1	1	1	2	0	0	0	1	0	1	1	0	2	0	0	0
Lack of cash and investment	0	3	4	3	1	1	2	3	2	3	1	3	0	0	1	2	2	1	2	0	0	1	0	0	0
The lack of international marketing research agencies in the country	2	1	0	6	3	1	1	3	0	2	3	1	1	1	1	2	1	0	1	2	0	1	0	1	1
Lack of marketing research	3	0	4	3	3	1	1	1	2	1	1	4	0	3	0	1	0	1	0	0	1	0	1	4	0
Inflation	6	1	2	1	2	2	0	2	4	1	1	1	7	0	2	0	0	1	1	1	0	0	0	0	0
weakness of planning and Policy	0	4	4	2	5	2	1	0	1	3	1	1	1	3	1	1	0	0	0	2	1	0	1	0	1
Branding weakness	5	2	3	3	4	0	1	0	0	1	2	2	0	2	3	0	2	1	0	3	1	0	0	0	0
Lack of reserves and raw materials of the same quality	2	2	2	3	3	4	3	0	2	0	1	1	1	2	2	3	0	2	0	0	0	1	0	1	0
Inefficiencies in unions	0	2	1	2	2	2	1	2	3	2	3	1	1	0	0	1	2	1	0	0	0	0	3	1	5

Afterward, using the Garrett and the frequency of each of the effective barriers, the percentage of total ratings of each factor was obtained to rank in accordance with Table 6.

Table 6. Calculation of Garrett value and ranking of each barrier affecting the export of seafood.

	Rank	Requests																											
Export Barriers	1 st	2 nd	3 th	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th	16 th	17 th	18 th	19 th	20 th	21 th	22 th	23 th	24 th	25 th	Total	%	Rank	
Weak infrastructure of export and marketing	1068	400	75	284	136	0	189	60	58	112	0	52	0	48	46	0	0	0	0	0	0	0	0	20	0	2548	25.5	1	
Weak convergence of global and regional	356	400	375	497	68	65	189	60	116	0	54	52	0	0	0	0	0	0	37	0	96	0	0	0	0	2365	23.7	2	
Lack of membership in WTO and strong regional organizations	178	400	450	284	204	65	126	60	0	56	0	52	0	0	46	44	0	120	0	35	0	0	0	40	11	2171	21.7	7	
Inefficiency of the banking system for export	89	560	300	284	136	195	252	180	116	56	0	52	0	0	0	44	42	0	0	0	0	29	0	0	0	2335	23.4	4	
Lack of appropriate and sustainable support policies	89	320	825	213	204	195	63	120	116	56	0	0	50	0	92	0	0	0	0	0	0	0	0	20	0	2363	23.6	3	
Traditional production practices	0	320	300	355	136	195	63	120	58	112	54	0	0	144	0	0	84	0	0	0	64	29	0	20	11	2065	20.7	15	
Increase of domestic consumption	267	0	225	142	68	195	0	120	0	112	108	52	0	0	0	0	0	0	37	35	64	29	75	60	55	1644	16.4	25	
Unfamiliar with market and international distribution system	89	80	225	284	408	130	126	60	174	112	54	0	100	0	138	0	0	80	0	0	0	29	25	0	0	2114	21.1	12	
Intense competition and lack of understanding of the moves of global rivals	0	0	375	497	272	0	63	180	174	56	108	0	0	0	0	0	126	0	0	105	32	29	25	0	0	2042	20.4	18	
Sanction	356	400	75	142	272	130	189	180	116	56	54	0	50	96	0	132	0	0	0	0	0	0	25	0	0	2273	22.7	5	
Lack of adequate understanding of seafood market standards	0	80	300	284	68	390	126	60	58	56	54	0	0	0	0	0	0	40	74	35	64	0	150	20	0	1859	18.6	22	
Ignoring production to international market preferences	0	480	300	142	68	130	315	420	58	56	0	104	0	0	0	0	0	0	74	0	32	0	0	20	0	2199	22	6	
High cost of production compared to world prices	267	320	150	142	204	195	0	120	58	112	108	0	0	0	0	0	0	120	148	35	0	0	0	20	22	2021	20.2	19	
Irrational support of production	178	80	375	213	272	0	63	120	116	56	108	104	50	0	0	88	84	0	37	35	32	29	25	0	0	2065	20.7	14	
Incoordination of export-related organizations in the country	89	240	300	142	136	195	126	180	290	56	54	52	100	0	0	0	42	0	37	35	0	58	0	0	0	2132	21.3	11	
Lack of cash and investment	0	240	300	213	68	65	126	180	116	168	54	156	0	0	46	88	84	40	74	0	0	29	0	0	0	2047	20.5	17	
The lack of international marketing research agencies in the country	178	80	0	426	204	65	63	180	0	112	162	52	50	48	46	88	42	0	37	70	0	29	0	20	11	1963	19.6	21	

Lack of marketing research	267	0	300	213	204	65	63	60	116	56	54	208	0	144	0	44	0	40	0	0	32	0	25	80	0	1971	19.7	20
Inflation	534	80	150	71	136	130	0	120	232	56	54	52	350	0	92	0	0	40	37	35	0	0	0	0	0	2169	21.7	8
weakness of planning and Policy	0	320	300	142	340	130	63	0	58	168	54	52	50	144	46	44	0	0	0	70	32	0	25	0	11	2049	20.5	16
Branding weakness	445	160	225	213	272	0	63	0	0	56	108	104	0	96	138	0	84	40	0	105	32	0	0	0	0	2141	21.4	9
Lack of reserves and raw materials of the same quality	178	160	150	213	204	260	189	0	116	0	54	52	50	96	92	132	0	80	0	0	0	29	0	20	0	2075	20.8	13
Inefficiencies in unions	0	160	75	142	136	130	63	120	174	112	162	52	50	0	0	44	84	40	0	0	0	0	75	20	55	1694	16.9	24
Weakness of storage and maintenance facilities	0	80	225	355	136	0	189	60	116	0	54	0	100	0	46	44	84	0	37	35	64	145	0	0	22	1792	17.9	23
Inappropriate internal rules and regulations	89	160	375	213	272	0	441	0	116	112	54	52	0	48	0	0	0	80	37	0	32	58	0	0	0	2139	21.4	10

CONCLUSION

Iran has the potential to exceed its current \$600 million in annual exports of aquatic animals and products. Research was conducted to optimize conditions and assess the development potential of aquatic product exports, leveraging Iran's fisheries capabilities. This involved identifying export barriers through a literature review and expert interviews, which were then structured into a questionnaire. Thirty-five exporters and experts completed the questionnaire, and Garrett's ranking method was used to prioritize 25 barriers. The most significant impediments to seafood exports, in order of importance, were: inadequate export and marketing infrastructure, weak global and regional integration, a lack of suitable and sustainable support policies, an inefficient banking system, and sanctions.

Sanctions hinder Iran's five-year development plans. Experts suggest improved business relations, crucial for boosting exports. Weak export infrastructure is a primary obstacle. Thus, the government should prioritize developing and integrating export equipment into its plans. Removing export barriers can escalate exports, which, according to Mehnatfar & Khakpour (2005), drives economic growth. Targeted export policies for fisheries products can further support economic growth. Overcoming these barriers should enable Iran to generate more revenue from its fisheries resources, leveraging its extensive coastline and inland water capacity.

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