

Assessment and Determination of Bilateral Trade Capacity between Iran and Turkey

Islam Mohammadi Giglou¹, Rovshan Guliev²

¹ Department of Management, Parsabad Moghan Branch, Islamic Azad University, Parsabad Moghan, Iran

² Institute of Economic Researches, Azerbaijan State University of Economics, Baku, Azerbaijan

Abstract

Foreign trade expansion plays an important role in economic growth and development. Since Iran's single-product economy is facing tight sanctions, among trading partners, Turkey benefits from special place, and political independence in international relations because of its large population, rising per capita income, high economic growth rate, geographical and cultural proximity to Iran. Many opportunities and substantial capacities have been established for expanding foreign trade between these two countries. To do this, it is necessary to determine the maximum export capacity of Iran to Turkey and whether this capacity has actually been deployed and realized or not. The next question is what the bases of Iran's export development to Turkey are, and the goods which should be focused on to develop trading. Therefore, the aim of this study was to estimate the maximum export capacity of Iran to Turkey and to determine the commodities with the highest export capacity. The Revealed Comparative Advantage (RCA) index, the Cosine Index, and the General Model of the gravity model were used to evaluate Iran's export potential and to determine commodities in which Iran has export advantage. Iran's export potential to Turkey was investigated in various years and in different commodity groups by comparing the rate of export volume of each commodity to total volume of its import by Turkey. Research findings indicated that the highest Iranian export potential value to Turkey was \$9,339 million, and just 7.2% of that (\$669 million) has been realized. Also, 11 commodity groups formed more than 66% of Iranian potential exports to Turkey. Among them, 'mineral products' with \$2,730 million, 'plastics and natural rubber and artifacts made from them' with 1,185 million, 'common metals and artifacts made from them' with \$918 million, and 'products of the chemical industry and its related industries' with \$879 million were respectively the four commodity groups with the highest export potential.

Keywords: Foreign Trade, Potential Export, Gravity Model, Revealed Comparative Advantage (RCA) Index, Cosine Index, General Model, Iran and Turkey.

JEL Classification: F14]

¹. Corresponding Author Email: mohammadi5879@yahoo.com

1. Introduction

Foreign or international trade is an important success factor that helped developed countries to achieve rapid economic growth. Nowadays, world is moving fast towards globalization, therefore, foreign trade expansion is necessary for sustainable development.

Foreign trade is important for Iran's single-product economy that is facing sanctions and experiencing many difficulties in exporting its commodities. Therefore, Turkey's market has special importance for Iran. Turkey's large population, per capita income rising, high economic growth rate, geographical proximity to Iran, and political independence in international relations are among the factors that attract Iran's interests in this country's market (Fahimifard, 2013).

Moreover, Turkey lacks oil reserves and other energy sources whereas Iran is rich in natural resources of energy. Therefore, the similarities in demand and differences in supply side of their economies increase the potential for trade and regional integration. This potential can be economically beneficial for them and other countries in the region and can guarantee the peace and stability in terms of politics and security.

To promote Iran and Turkey trading volume, it is necessary to know how much the maximum export capacity of Iran to Turkey is, and how much of this capacity has actually been deployed or realized. The next question is what the bases of Iran's export development to Turkey are, and which goods have the main priority for the development of trading between the two countries. So, the aim of this research is to estimate the maximum export capacity of Iran to Turkey and to determine the commodities with highest export capacity.

This study is organized in five sections. After presenting problem statement in introduction, Section 2 deals with examining and analyzing various models used to determine export potential and trading capacity. After that, the general model is introduced and used as research methodology in Section 3. Research findings are summarized and given in Section 4. Finally,

the conclusions and recommendations derived from research results and analyzes are presented in Section 5.

2. Literature Review

Considering the role of international trade in economic development, it is very important to calculate trade potential among countries. A considerable part of world trade research has calculated the maximum possible levels of exports and imports among countries. Various models have been employed in calculating trade potential with the gravity model, the RCA index, the cosine index, and the general model being the most important ones. The models were investigated separately, as well as the characteristics and the efficiency of each one, to answer the questions of this research.

The Gravity Model: This model has been widely used in world trade research in recent years. Sologa and Vinters (1999) used it to study factors influencing trade potential between North and Latin American countries and emphasized the importance of geographical distance and gross national product in increasing trade among them.

Martinez-Zarzoso and Nowak-Lehmann (2003) employed the extended gravity model:

$$X_{ij} = \beta_0 GDP_i^{\beta^1} \cdot GDP_j^{\beta^2} \cdot N_i^{\beta^3} \cdot N_j^{\beta^4} \cdot D_{ij}^{\beta^5} \cdot A_{ij}^{\beta^6} \cdot U_{ij}$$

Here, X_{ij} is the variable of trade relations between two countries, GDP_j and GDP_i are their gross domestic products and N_j and N_i their population indices, U_{ij} is the error variable, and A_{ij} is the abstract variable that takes into account contiguity of and trade, economic, and cultural cooperation between them (Martinez-Zarzoso & Nowak-Lehmann, 2003).

Molle (2001) employed the gravity model and emphasized the effect of preferential agreements as an abstract variable in determining trade potential between countries.

Tayebi and Azarbaijani (2001) used the gravity model to determine trade potential between Iran and Ukraine. Employing the Linder Hypothesis, they stressed the importance of the extent of similarities

between the two economies as a factor stimulating trade between them:

$$\begin{aligned} \text{Log}T_{ij} = & a_1 + a_2\text{Log}GDP_i + a_3\text{Log}GDP_j \\ & + a_4\text{DIS}_{ij} + a_5\text{LIN} + V_{ij} \end{aligned}$$

In this equation, it is expected that a_2 and a_3 will be positive and a_4 and a_5 negative.

Gul and Yasin (2011) used the gravity model to estimate Pakistan's trade potential. They employed the information on 42 countries for the 1981-2005 period to estimate Pakistan's potential for foreign trade with various countries in the world.

Khan and Khan (2013) estimated Pakistan's trade potential for the 1990-2010 period based on the gravity model. They noticed that GDP and GDP per capita influenced Pakistan's trade potential as positive factors, whereas geographical distance and cultural similarities affected it as negative factors. Based on the information for 2010, Pakistan had the highest potential for trade with Japan, Turkey, Malaysia, India, and Iran.

A study by Nasiri and Hassani (2013) estimated Iran's potential for trade with 161 trading partner countries and showed that Iran had strong potential to export commodities to 94 countries.

The Gravity Model has been more frequently used for estimating trade potential, but it does not provide any information on the types of commodities that can be exported. Rather, it identifies factors that influence trade between countries based on the researchers' presuppositions (Silva & Tenreiro, 2006).

The RCA index: Balassa was the first to use this index for in the following form for evaluating a country's export potential (Nasiri & Naseri, 2009):

$$RCA_{ij} = \frac{X_{ij}/X_{iw}}{X_j/X_w}$$

Here, the numerator represents the share country j has of international trade in commodity i and the denominator is the share country j has of the total world trade. If the value of the fraction is higher than 1, it indicates that country j enjoys revealed comparative advantage in exporting

commodity i .

Using this equation for every country allows us to prepare a list of commodities having RCA. In comparing two countries, the less similar the lists of the commodities having RCA in the two countries are, the greater trade potential and the more numerous trade opportunities between them will be.

The International Trade Center (2001) used the information for the period 1990-2000 to extract the RCA of various countries in the world for 12 commodity groups. ITC research is one of the reference sources for determining the RCA of each country for trade in these 12 commodities.

Soori and Tashkini (2012) employed Balassa's formula to study the RCA index for NAFTA members in trading in agricultural commodities in 1996-1998.

Mehdipour Tamali (2005) used the RCA index to determine Iran's potential for trade with member countries of the Organization of Islamic Cooperation (OIC). Based on results obtained for 1997-2001 period, the estimated potential for Iranian exports of non-oil commodities to member countries of the IOC was \$400 million and the potential for Iranian imports from these countries was \$1000 million. However, only \$204 million and \$409 million of this potential (50% and 40% of the export and import potential, respectively) were realized.

The RCA index specifies a list of commodities with export potential but does not quantitatively determine the superiority of the commodities in relation to each other.

The Cosine Index: The Cosine Index can be used to determine the degree of trade complementarities between two countries through using the degree of similarity between the exports of one country to the imports of the other. This index was first introduced in the book *Mathematical Economics* written by Allen in 1957. He used the cosine index to explain the degree of similarity of exports and imports of two countries as follows (Anderson & Yotov, 2010):

$$Cos_{ij} = \frac{e_i \cdot m_j}{[e_h][m_j]} \Rightarrow Cos_{ij} = \frac{\sum E_{ik} \cdot M_{jk}}{\sqrt{\sum E_{ik}^2 \cdot \sum M_{jk}^2}}$$

$k = 1, 2, 3, \dots, n$

Here, i , j , and k represent the exporting country, the importing country, and the number of the commodity group, E_{ik} the volume of commodity k exported from country i to other countries, and M_{jk} the volume of commodity k imported by country j .

These two vectors can be compared by determining the angle between them in the n dimensional commodity space. A small angle indicates that the export composition of country i to all destinations is similar to the import composition of country j from all origins, whereas a large angle shows that the export structure of country i is not similar to or compatible with the import structure of country j . The cosine of the angle between the two commodity vectors is usually measured.

Identical export composition of country i with import composition of country j indicates complete complementarities. Lack of any similarities between the composition of exports by country i and the composition of imports by country j demonstrates that the e and m vectors are orthogonal ($Cos_{ij}=0$) and there is no trade complementarities between them. The cosine values for the two vectors can vary between the critical values of 0 and 1.

The cosine index indicates the expected mutual trade flow intensity from the exporting country i and the importing country j . This criterion reveals nothing about the actual trade potential. In other words, two countries may be completely similar in trade but it is not clear if any trade has actually taken place between them. Put it differently, the comparison of similarities does not explain the reason for its occurrence but rather indicates a behavior that may happen between two countries.

The General Model: In this method, a table is drawn up presenting the export items of country I and the import items of country T in the first column based on one of the international classification codes. The second column shows the export volume of each item from country I and the third column the import

volume of the same commodity by country T. In the fourth column, the lowest value for the numbers in each row is presented between the second and third columns representing the highest trade potential between the two countries for each commodity. The sum of the numbers in the fourth column indicates the highest potential of country I to export commodities to country T. It is not possible, nor logical, to allocate the entire export potential to a single country. Therefore, based on this methodology, about 30% of the highest potential of country I for exporting commodities to country T can be considered its 'export potential' (Abedin, Rahmani & Mahammadsaeid, 2016).

An important issue in trade negotiations for policy makers is a list of commodities with high export potential to the country that is the party in the negotiations. However, the previously mentioned models can only present the total bilateral trade potential and do not provide information on the export potentials of the various commodities. In the General Model, we can present a list of commodities with high potential for being exported from country I to country T together with the level of this potential for each commodity.

The highest potential of country I for exporting commodity K to country T is obtained from the following equation (Tash, Jajri & Tash, 2012):

$$IXP_{IT}^K = \text{Min}(X_{IW}^K, M_{TW}^K)$$

The total potential that country I has for exporting commodities to country T can be determined by adding up the figures related to the potential for exporting the commodities with the various commodity codes ($K=1, 2, 3, \dots, n$):

$$A = POT_{IT} = \sum_{k=1}^n IXP_{IT}^k$$

A similar process in the reverse direction must be carried out to calculate the potential of country I for imports from country T.

Methodology

In this section, the General Model was used to estimate the potential for exporting Iranian commodities to Turkey. The data for 2002-

2009 period were used since this time interval encompasses normal and crisis-free years. This period was also suitable as the related trade data were available from various sources. It is not possible to obtain information on Iranian trade during the recent years for political and

economic reasons. As for stability in various markets, especially in the foreign exchange market, the period 2002-2009 period was very appropriate. Table 1 shows Iran's potential in exporting goods to Turkey in this period.

Table 1. Iran's Potential for Exporting Commodities to Turkey (in \$ Million)

Year	Export potential	No. of commodity groups with six-digit HS codes	Total Turkish imports	Total Iranian exports	Iranian exports to Turkey	Iran's unrealized export potential to Turkey	The share Iranian exports to Turkey had of the potential Iranian exports to this country	The share Iranian exports to Turkey had of the total Iranian exports	The potential share Turkey's market had of the total Iranian exports	The share Iranian exports to Turkey had of Turkey's total imports	The (highest) potential share Iran had of Turkey's total imports	Turkish import tariffs
	A	B	C	D	F	M=A-F	N=F/A	K=F/D	L=M/D	P=F/C	Q=A/C	R
	POT_{IT}	HS	M_{TW}	X_{IW}	X_{IT}	$POTNET_{IT}$	$SPOT_{IT}$	S_{IT}	$EXPOTNET_{IT}$	SM_{IT}	$SMPOT_{IT}$	
2002	1517	2414	32557	3074	112	1405	7,35	3,6	45,71	0,34	4,66	7,60
2003	1999	2803	48844	4075	93	1906	4,66	2,3	46,72	0,19	4,09	7,75
2004	3285	3052	71252	5876	106	3180	3,21	1,8	54,11	0,15	4,61	7,61
2005	4565	3319	91653	7839	182	4383	4,00	2,3	55,91	0,20	4,98	7,55
2006	6276	3329	103840	10759	371	5906	5,91	3,4	54,89	0,36	6,04	7,52
2007	7445	3213	131832	13690	664	6782	8,91	4,8	49,54	0,50	5,65	8,08
2008	9338	3193	154532	18059	669	8670	7,16	3,7	48,01	0,43	6,04	8,05
2009	6634	2871	109055	11630	399	6235	6,02	3,4	53,61	0,37	6,08	8,23
Average	5132	3,024	92946	9375	324.5	4808	5.90	3.5	51.06	0.32	5.29	7.80

The total value of the potential Iranian exports to Turkey (A) in commodity groups with six-digit HS codes was obtained from the following equation (Taghavi et al., 2012):

$$IXP_{IT}^K = \text{Min}(X_{IW}^K, M_{TW}^K)$$

Here, I , T , and W represent Iran Turkey, and the world, respectively, IXP_{IT}^K is the potential for Iranian exports to Turkey for the commodity group K , X_{IW}^K is Iranian exports of the commodity group K to the world, M_{TW}^K is Turkish imports of the commodity group K from the world.

$$A = POT_{IT} = \sum_{k=1}^n IXP_{IT}^K$$

Using this index for the study years, it was possible to calculate the actual and potential volume of Iranian exports to Turkey. Based on

the table, the values of potential Iranian exports to Turkey for 2002 and 2009 were \$1,517 million and \$6,634 million, respectively. The highest Iranian potential for exports to Turkey during the study period was that of 2008 with \$9,338 million.

Based on the HS system for classifying goods, the number of commodities exported from Iran and imported by Turkey was shown by using the B index. This index indicated the diversity of the commodities Iran exported to Turkey. In the best-case scenario, Iran could export 3,329 kinds of commodities to Turkey (Ω).

The total value of Turkish imports from the world (for commodities that Iran had the potential to export to Turkey) was calculated using Equation C:

$$C = M_{TW} = \sum_{K \in \Omega} M_{TW}^K$$

Based on index C, the total value of the 2,414 types of commodities that Turkey imported from the world in 2002 (and Iran had the potential to export them to Turkey in 2002) was \$32,557 million.

Equation D was employed to calculate the total value of Iranian exports to the world (for commodities that Iran had the potential to export to Turkey):

$$D = X_{IW} = \sum_{K \in \Omega} X_{IW}^K$$

Based on Equation D, the total value of the 2,414 commodities that Iran exported to the world in 2002 (and Iran had the potential to export them to Turkey in 2002) was \$3,074 million. This index increased to \$18,059 million in 2008.

The value of Iranian exports to Turkey was obtained from Equation F. It was \$399 million in 2009 and reached its highest level (\$669 million) in 2008.

$$F = X_{IT} = \sum_{K \in \Omega} X_{IT}^K$$

Index M was used to calculate the value of unrealized export potential. In other words, this index indicates to what extent Iran did not utilize its potential for exports to Turkey. The value of this index in 2008 was \$8,670 million.

$$M = POTNET_{IT} = A - F$$

Iran's share of exports to Turkey from its potential exports to this country was obtained from Equation N. Based on this index, in the best-case scenario, Iran utilized 8.91% of its potential to export goods to Turkey.

$$N = SPOT_{IT} = \frac{X_{IT}}{POT_{IT}} \times 100\% = \frac{F}{A} \times 100\%$$

Index K was employed to calculate the share of total Iranian exports to the world that Turkey imported. In 2009, Turkey's share of the total Iranian exports to the world was 3.4

percent.

$$K = S_{IT} = \frac{X_{IT}}{X_{IW}} \times 100\%$$

The potential share that the total Iranian exports had of the Turkish market was calculated by using index L. The value of this index in 2009 was about 53.6%. This means that, in the best-case scenario Turkey's imports from Iran could account for 53.6% of the total Iranian exports.

$$L = SXPOTNET_{IT} = \frac{POTNET_{IT}}{X_{IW}} \times 100\%$$

Index P was employed to calculate Iran's share of the Turkish market (or Iran's share of the total Turkish imports). The value of this index for 2009 was about 0.37%.

$$P = SM_{TI} = \frac{X_{IT}}{M_{TW}} \times 100\%$$

The highest potential share Iran had of the total Turkish imports was calculated using Equation Q. In 2009, this share was 6.08%. However, Iran's actual share of the total Turkish imports was 0.37%.

$$Q = SMPOT_{TI} = \frac{POT_{IT}}{M_{TW}} \times 100\%$$

The average Turkish import tariff is presented in column R. The average Turkish tariff on the traded commodity groups in 2009 was 8.23%, which was high compared to the average Turkish import tariff.

Table 1 indicates the situation of potential Iranian exports to Turkey. Based on the average for the 8-year study period, Iran had the potential to export 3,024 types of commodities to Turkey. On average, Iran had the potential to export commodities worth \$5,132 million dollars to Turkey, but only 5.9% (or \$324.5 million) of this potential was realized. If Iran used its total potential for exporting goods to Turkey, its share of the Turkish market would rise from 0.32 to 5.37%.

Table 2. Iran's Potential for Exporting Commodities to Turkey based on Value Index (in \$ Million)

s	No. of commodity groups with six-digit HS codes	Total Export potential	Share from Total Export potential	Total Turkish imports	Total Iranian exports	Iranian exports to Turkey	Iran's realized export potential to Turkey	The share Iranian exports to Turkey had of the potential Iranian exports to this country	The share Iranian exports to Turkey had of the total Iranian exports	The potential share Turkey's market had of the total Iranian exports	The share Iranian exports to Turkey had of Turkey's total imports	The (highest) potential share Iran had of Turkey's total imports	Turkish import tariffs
		A	B	C	D	F	M=A-F	N=F/A	K=F/D	L=M/D	P=F/C	Q=A/C	R
>100 mln.doll.	11	4382	66,1	1300	4910	159	4223	3,6	1,2	33,8	3,2	86,0	4,0
50-100mln. doll.	8	5140	7,7	3745	1847	61	453	11,8	1,6	13,7	3,3	24,5	5,0
10-50mln. doll.	32	641	9,7	1100	1177	40	601	6,3	0,4	5,8	3,4	51,1	6,8
1-10 mln. doll.	269	836	12,6	2400	2026	116	720	13,9	0,5	3,5	5,7	35,5	8,2
<1 mln.doll.	2551	260	3,9	5800	1670	23	237	8,8	0,0	0,5	1,4	14,2	8,3
Total	2871	6634	100	11000	11630	399	6234	6,0	0,4	6,1	3,4	53,6	6,5

Table 3. Iran's Export Potential to Turkey based on 21 Commodity Groups with HS Codes (in \$ Million)

Commodity groups	HS codes of the commodity groups	Export potential	No. of 6-digit tariffs	Total Turkish imports	Total Iranian exports	Iranian exports to Turkey	Realized Share of potential Iranian exports to Turkey	Potential Iranian exports to Turkey that were not realized	The share that Iranian exports to Turkey had of the total Turkish imports	The highest potential Iranian share of the total Turkish imports	The share Iranian exports to Turkey had of the total Iranian exports	The potential share the Turkish market had of the total Iranian exports
		A	B	C	D	F	N=F/A	M=A-F	P=F/C	Q=A/C	K=F/D	L=M/D
1	2	3	4	5	6	7	8	9	10	11	12	13
Live animals, animal products	1	26,3	58	219,0	70,8	0,5	1,8	25,8	0,22	12,0	0,7	36,4
Vegetable products	2	111,7	159	2811	773	6,1	5,5	105,6	0,22	4,0	0,8	13,7
Animal or vegetable fats and oils and their leavage products	3	13,2	23	990,6	13,8	0,0	0,2	13,2	0,00	1,3	0,2	95,4
Prepared foodstuffs	4	65,2	129	1458	101	0,7	1,1	64,4	0,05	4,5	0,7	63,6
Mineral materials	5	2729,3	85	14693	4898	51,8	1,9	2677,5	0,35	18,6	1,1	54,7
Products of the chemical industry and its related industries	6	879,2	375	12759	2650	32,7	3,7	846,5	0,26	6,9	1,2	31,9
Plastics and natural rubber and artifacts made from them	7	1185,5	158	8010	1211	128,7	10,9	1056,8	1,61	14,8	10,6	87,3
Raw hides and skin, leather, furskins and articles thereof	8	30,1	42	644,6	88,9	5,4	17,9	24,7	0,84	4,7	6,1	27,8
Wood and articles of wood	9	2,0	36	415	2,0	0,2	11,2	1,7	0,05	0,5	11,2	88,8
Pulp of wood or of other fibrous cellulosic material	10	10,0	84	2028	11,4	1,4	13,5	8,7	0,07	0,5	11,8	75,9
Textiles and textile articles	11	143,3	361	5535	259,4	19,3	13,5	124,0	0,35	2,6	7,5	47,8
Footwear, headgear, ...	12	3,4	35	598	3,4	0,0	0,0	3,4	0,00	0,6	0,0	100,0
Articles of stone, plaster, cement	13	51,6	108	987	75,1	9,0	17,4	42,6	0,91	5,2	11,9	56,8
Natural or cultured pearls,	14	2,7	16	349	2,7	0,3	11,9	2,4	0,09	0,8	11,9	88,1
Base metals and articles of base metals	15	917,7	348	16378	987,1	106,9	11,6	810,8	0,65	5,6	10,8	82,1

Machinery and mechanical appliances; electrical equipment	16	246,3	545	26886	259,9	16,1	6,5	230,1	0,06	0,9	6,2	88,6
Vehiclees, aircraft, vessels and associated transport equipment	17	176,9	78	10122	178,3	19,0	10,7	157,9	0,19	1,7	10,6	88,5
Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments	18	28,0	141	2826	28,0	0,9	3,3	27,1	0,03	1,0	3,3	96,7
Arm and ammunition; parts and accessories thereof	19	0,8	2	2,7	0,8	0,0	0,0	0,8	0,00	28,7	0,0	100,0
Miscellaneous manufactured articles	20	4,6	81	1329	4,6	0,4	7,7	4,2	0,03	0,3	7,7	92,3
Works of art, collectors, pieces and antiques	21	6,3	7	13,5	10,9	0,0	0,1	6,3	0,04	47,1	0,1	58,2

Based on Table 2, Iran had the potential to export 2,871 types of commodities worth \$6,634 million to Turkey among which 11 commodities constituted 66.1% of the total potential export. The commercial value of each of these 11 commodities exceeded \$100 million. The actual export of these 11 commodities to Turkey was 3.6% of the potential export.

The main goals of this study were to calculate Iran's potential to export commodities to Turkey and to determine Iranian commodity groups with potential to be exported to this country. Results of Table 3 showed that 'mineral materials' had the highest export potential. The share exports of mineral materials to Turkey had of the total 'mineral materials' exported from Iran was about 1.1%, the unrealized potential for exporting mineral materials to Turkey was 54.7%, and the value of the unrealized potential to export mineral materials to Turkey \$2,677.5 million.

The commodity group 'plastics and natural rubber and artifacts made from them' ranked second. Its share of exports to Turkey

accounted for about 10.6% of the total Iranian exports of this commodity group, the unrealized potential of its export to Turkey was 87.3%, and the value of this unrealized potential for export to Turkey \$1,056.8 million.

The third rank was that of the commodity group 'products of the chemical industry and its related industries'. Its share of exports to Turkey accounted for about 1.2% of the total Iranian exports of this commodity group, the unrealized potential of its export to Turkey was 31.9%, and the value of this unrealized potential for export to Turkey \$846.5 million.

The fourth rank belonged to the commodity group "common metals and artifacts made from them." Its share of exports to Turkey accounted for about 10.8% of the total Iranian exports of this commodity group, the unrealized potential of its export to Turkey was 82.1%, and the value of this unrealized potential for export to Turkey \$810.8 million.

Results and Conclusions

The results showed that Iran has high export potential to Turkey in various commodities,

but only small part of which has been realized. Furthermore, the highest potential value of Iranian exports to Turkey was \$9,339 million, but only 7.2% of it (\$669 million) was realized.

Besides, based on the evaluations the minimum rate of Iran's potential exports to Turkey's market was 49.3% and the maximum rate was 58%. However, the highest rate of that for Iran was only 4.8% during the research period in 2007.

Moreover, the evaluation of Iran export potential to Turkey revealed that it increased approximately 4.4 times during 2002-2009 and reached 6.6 from \$1.5 billion, while only 6% of which has been realized in 2009.

Also, analysis of commodity groups showed that there were considerable possibilities for expanding Iranian exports in terms of them to Turkey. Among 11 commodity groups forming more than 66% of the Iran's potential exports to Turkey, four commodity groups identified with highest export potential were successively 'mineral products' with \$2,730 million, 'plastics and natural rubber and derived products' with 1,185.5 million, 'common metals and artifacts made from them' with \$918 million, and 'chemical industry products and its related industries' with \$879 million.

Policy Recommendations

Export potentials in the General model are determined based on market realities and realized statistics. Therefore, it is necessary to consider the results with possible existence of bias and give priority to commodities with high export potential.

Suitable infrastructure for trading of commodities with high export potential should be provided while developing an infrastructure like loading and unloading facilities, transportation, transit, and asphalt roads, railroad for facilitating import, export operations and coordinating infrastructure expansion with economic logic.

Tariffs reduction should be emphasized for the commodity groups of 'mineral materials', 'plastics and natural rubber and its artifacts', 'chemical products and its related industries', and 'common metals and its derived artifacts' in trade negotiations.

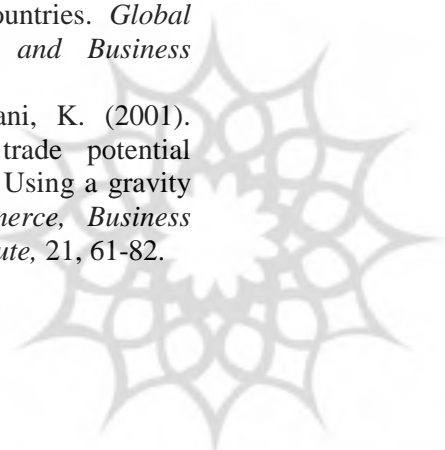
Finally, this research should be repeated

alternately with new data to update the information. Moreover, results of such studies should be described in seminars for traders and businessmen to clarify critical points and matters and offer them some advices and solutions.

References

1. Abedin M., Rahmani M., & Mahammadsaeid H. (2016). Iran & Persian Gulf trade relation potential studying. *Journal of Economic Research*, 27, 195-217.
2. Anderson, J. E., & Yotov, Y. V. (2010). The changing incidence of geography. *American Economic Review*, 100(5), 2157-2186.
3. Fahimifard, S. M. (2013). Studying Iranian Economic Integration with OIC members using gravity model. *J. Money Econ*, 8, 169-181.
4. Gul, N. and Yasin, H. (2011). The Trade Potential of Pakistan: An Application of the Gravity Model. *Lahore Journal of Economics*, 16(1), 23-62.
5. ITC: *The International Trade Center*. www.intracen.org
6. Khan, S., & Khan, D. (2013). An Empirical Analysis of Pakistan's Bilateral Trade: A Gravity Model Approach. *Romanian Economic Journal*, 16(48).
7. Martinez-Zarzoso, I., & Nowak-Lehmann, F. (2003). Augmented gravity model: An empirical application to Mercosur-European Union trade flows. *Journal of applied economics*, 6(2), 291-316.
8. Mehdipour Tamali F. (2005). Assessment and Determination of Bilateral Trade Capacity between Iran and OIC members. *Journal of business researches*, 36, 107-139.
9. Molle, F. (2001). *Water pricing in Thailand: Theory and practice*. DORAS Center, Kasetsart University.
10. Nasiri, N., & Hassani, A. (2013). Assessment of Iran's international trade potential (A Gravity model analysis). *Reef Resources Assessment and Management Technical Paper*, 38(5), 398-409.
11. Nasiri M., & Naseri S. M. (2009). Trade potential between Iran and Suriya, Turkey & Indonesiya. *Journal of business researches*, 51, 163-197.

12. Silva, J. S., & Tenreyro, S. (2006). The log of gravity. *The Review of Economics and statistics*, 88(4), 641-658.
13. Sologa, I., & Vinters, L. A. (1999). *How has regionalism in the 1990s affected trade?* The World Bank.
14. Soori, A. R., & Tashkini, A. (2012). Gravity model: an application to trade between Iran and regional blocs. *Iranian economic review*, 16(31), 1-12.
15. Taghavi, A., Fazeli, Z., Vahedi, M., Baghestani, A. R., Pourhoseingholi, A., Barzegar, F., & Pourhoseingholi, M. A. (2012). Increased trend of breast cancer mortality in Iran. *Asian Pacific Journal of Cancer Prevention*, 13(1), 367-370.
16. Tash, M. S., Jajri, I. B., & Tash, M. N. (2012). An Analysis of Bilateral Trade between Iran and D-8 Countries. *Global Journal of Management and Business Research*, 12(2).
17. Tayebi, S., & Azarbajejani, K. (2001). Reviewing the existing trade potential between Iran and Ukraine: Using a gravity model. *Journal of Commerce, Business Studies and Research Institute*, 21, 61-82.



پژوهشگاه علوم انسانی و مطالعات فرهنگی
پرتال جامع علوم انسانی

