Ranking of west and South west Borders of Iran for Expending Trade with Iraq

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Abstract: Relation between Iraq and Iran, during recent B years, indicates developing trend of exporting gods to this country and making Iraq as the second exporting partner. Exploring Iraq's geography, it was noticed that more than 80% of population, and economic, service, cultural and shelter equipment in this country lies in Midwest that are close to Iran Borders. This can be a valuable help to the expansion of trade borders. Currently, border trade transactions with Iraq is made through border marketing and borders. The number of border marketing's with Iran are 13 and defined formal trade borders are khosravi, Mehran and shalamche that are placed in kermanshah, Ilam and Khuzestan provinces that are posited in west and southwest of Iran. The purpose of this paper is selection of ideal border area for expending trade Iraq. In this regard we used one of the ideal selection methods of places in theories of location and ranking methods of borders, according to which Mehran border lies in the first rank.
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Introduction

Business and trade is one of the topics that has received a considerable attention in old economic literature. Before, merchontilists , economists have known international trade as the driving engine of growing economy of societies. Identification of regional benefits is a sure guidance and interesting factor of internal and external investments in business and production areas. In fact identifying benefits of each region is better use of available and this facilitates expansion of that region.

One of the purpose of this research is finding an ideal option for effectiveness of external trade of Iran through finding ideal region borders for locating productive, trading and international equipments for expanding trade with Iraq.

In this research, at first we explored trade condition of Iran and Iraq and an analysis of joint border and process of deing trade transaction in them for identifications of they borders in examining research hypotheses. Introducing variety of methods of ranking factor analysis method and taxonomy were offered that ranking and testing hypotheses were made through them. Afterwards, selective scales for ranking results of implementing combining taxonomy method and factor analysis is offered and finally implementation procedures for expanding trade with Iraq is presented.

1-Exploring trade relation of Iraq and Iran during 1377-1386.

Because of lack of trade and political relations and occurrence of war of Iraq and Iran there was no trading exchange between countries until 1377. but with increasing political interaction and following that trading and economical relations of two countries from them now on we have observed a rising trend (Trade expanding organization 1381). Also condition created after sadam's toppling and increasing international trade interactions and exchanges with this country has caused increased considerable trade relations of our county (especially increasing exports to this country) in a way that in 1386 after Arab united Emarat, Iraq with 1842/4 million dollar (12/8% of total non-oil exports) has been the biggest country for Iran exporting goods. (Islamic republic of Iran 1387). Trend of trend exchanges of Iran and Iraq during 1386-1377 is presented in table (1). Iran's exports to Iraq from 29760861 dollar in 1377 with mean growing rate 58/15% yearly has reached to 1842418571 that shows the increasing and growing trend of exports to this country in the mentioned decade. Trade of from and Iraq in this criod has been always positive and in favor of Iran and from 6791927 dollar in 1377 with mean growing rate 85/3% yearly that reached to 1750035765 in 1386 (Table 1).

Main reason for lowering rate of Iraq exports to our country is that major non-oil exporting goods of Iraq to the world includes and metal and oil and oil deriving that are the major exporting goods of Iraq haven't capability of exporting to Iran. Because Iran is itself exporter of oil and oil products. On the other hand Iraq is not an industrial and developing country to have industrial goods and major exports of this country except oil is row national and mineral like sulfur.

According to table (1), in 1377 Iraq has 25th rank in respect of mount of non-oil exports to our

country, but growing more of exporting goods to this country, in 3 recent years had made Iraq, the second exporting partner of our country. This growing trend has made our authorities and planners in external (foreign) trade area to develop a coherent and strategic planning for cooperation in Iraq marketing (and following that increasing trade exchange to two country) as one of the main exporting market of our country. Because in current condition most of the features such as cultural and religious closeness, growing economy and reconstructing this country, this market will have a capability of developing exporting abilities of our country.

Table 1. Iraq has 25th rank in respect of mount of non-oil exports to our country, but growing more of exporting goods to this country, in 3 recent years had made Iraq, the second exporting partner of our country.

Imports	Non 0 .1 exports	Year
53	25	1377
40	8	1378
49	9	1379
51	8	1380
57	6	1381
34	2	1382
60	3	1383
76	2	1384
60	2	1385
44	2	1386

2-Exploring condition of joint borders of Iran and Iraq doing exchange process in them.

As one of the main points of this research, dealing with topic of joint borders of Iraq and Iran and ranking ideal point for exporting trade, it is necessary to briefly explore condition of joint borders in these two countries: in both political –geographical and economical aspects.

2-1 social –geography condition of joint border [3]

In exploring Iraq population, most if its population and populated area in this country are seen in north, cost, mid, and southeast and in south, west

and northwest because of chi male and natural limitations is out of populations. In fact main population area of Iraq is in 100-200 kilometers Iran borders centered across. The most populated cities of Iraq and its main economic equipments and under structures all are scattered in mid east of Iraq from north to south as a south –north axis. And most of them are by the running waters and related areas. It can be said they have following the climate condition and availability of water.

In general, more than 80% of Iraq population and economical, service, cultural and sheltering equipments are located in Mideast that are close to Iran borders. Borders between Iran and Iraq is 1609 Kilometer long (41/6% joint borders of Iraq) this border line in right side stretches from starting to mountain (location of third rod border Iran-Iraq-Turkey).

Form all miles between two countries, about 500 km of it, e.g. Mountain to plain forms heights and mountainous areas and border line in this distance often crosses heights. From plain to Mehran plain about 300 km border bond crosses heights. Form Mehran plain to regions that borders of river enters border area in, border with length of 400 km crosses discontrivucint lands. From the regions that forms joint two countries, the border with length of 220 km crosses, the rest of border from this point to in with 64 mile km forms.

2-2 process of doing trade exchanges in border points.

Trade exchanges with Iraq are made through border marketing and that will b discussed in details. Border marketing according to 22 of administrative rules of constition of imports and export, border marketing is on enclosed site located in D point border and by the legal for goods or locations that are determined according to the between Iran and other neighboring countries. Currently there are 50 border marketing in Iran that are located in neighboring borders with Iraq, Nakhhavan, Turley, Alav baijan, Armenia, after, Afghanistan, Pakistan and Turkmenistan. List of neighboring markets with Iraq is provided Table 2.

Table 2- list of border markets neighboring Iraq and their location.

Province name	Market place	Market name	run
Azarbaeijangharbi	Piranshahr	Tamarchin	1
Azarbaeijangharbi	Sardasht	Ghasem rash	2
Azarbaeijangharbi	Oshnaveh	Oshnaveh	3
Kordestan	Baneh	Siran band	4
Kordestan	Marivan	Bashmagh	5
Kordestan	Saghez	Sayf	6
Kermanshah	Paveh	Shoshmy	7
Kermanshah	Gavanrod	Shekh shleh	8
Kermanshah	Ghaser shirin	Parviz khan	9

Kermanshah	Sarpol zahab	Tile koh	10
Kermanshah	Khosravi	Khosravi	11
Ilam	Mehran	Mehran	12
Ilam	Dehloran	Dehloran	13

Defined trade formal borders formal trade borders with Iraq are defined Mehran, shalamched, and khosravi that are located in kermanshah, Ilam and Khuzestan in west and southwest of our country. Information of mentioned provinces and Iraq provinces neighboring border are presented in table 3.

Table 3- gurcial information of Ilam, kermanshah, Khuzestan and Iraq provinces neighboring border.

Iraqien province population in nearly of Iran 2006	Iraqien province in nearly until space 200km	International boundary	Common boundary with iraq	Population	Province name	row
4606440	Dyali, salshdin, solimaneh	Khosravi	330	1879385	Kermanshah	1
9360494	Misan, dyali, baghadad	Mehran	425	545787	Ilam	2
4367844	Zighar, misan, basreh	Shalamche	250	4274979	Khozestan	3

Also in table 4 information related to the formal trade borders defined in these provinces, towns and geographical location of defined trade border and neighboring Iraq is provided.

Table 4. information related to the formal trade borders defined in the provinces, towns and geographical location of defined trade border and neighboring Iraq

Iraq custom	Custom and joinery thing	Geography position	Township	Boundary name	Row
Ghorato	Khosravi custom and parvizkhan boundary market	City ghasershirin 18 km	Ghasershirin	Khosravi	1
Zorbateh	mehran custom and (Bahram Abad) boundary market	City mehran 5km	Mehran	Mehran	2
Basreh	shalamche custom and shalamche boundary market	City khoramshar 16km	khoramshahr	shalamche	3

3. selection of scales and borders for ranking.

Expanding trade countries between countries with emphasis and trade border largely depends on feature, border regions, benefits and defival capability for them. Essentially , until a suitable export –import terminal structurally be with out necessary condition for expanding trade in border regions, one can not use these benefits and capabilities. Since our purpose have is exploring and identifying appropriate import-export terminals in neighboring Iraq's border regions and recognizing capabilities of these regions, so some indices should be selected to help this. In following description of selection process of this indices and border regions is provided.

3-1 Identification of border regions for exploring ad ranking of testing hypothesis According to the geographical organization of armed forces of Islamic republic of Iran (1387), joint border of Iran and Iraq has 1609km length. Across this joint border region lie west azarbaigan, kurdestan, kermanshah, Ilam and Khuzestan province. As was mentioned one of the purposes of research is identification of economic areas in this border that possess geographic, trade industrial capabilities for locating and centering industrial, under structure and trade equipments. Joint border of Iran and Iraq on the part located in west azarbaigan and kurdestan provinces (that starts from large Dalampu mountains – location of border rod of Iran, Iraq and turkey and stretches to ghasre shirin plains in kermanshah province). Largely includes mountains with cold weather and under structure equipments and weak population distribution. Also trade relations in our country in kurdestan and west Azarbaigan is just limited to border markets that confronts with much up and down and in many cases has led to the closing of these markets in political tensions or weak trade performance. Until now international trade border is not defined by our country authorities.

So the rage of explored borders limited to kermanshah, Ilam and khuzestan provinces located in west and southwest of our country that are

respectively defined in khosravi, Ilam and shalamches borders. Now considering recognized borders research hypothesis designed in this ways.

Mehran borders posses more appropriate trade position for expanding trade with Iraq than other ground borders.

In research in practice science. There are two major procedures in relation to ranking methodologies= a single criterion decision and multi criteria decision the single criterion decision is a decision that on one criteria decision is made. For example suppose that a person buys a car that has a lower price. In this case, because decision making is just based on price, it is a single criterion decision. However , if numbers of criteria be more than one case, it is a multi-criteria decision. Multi-criteria also divided into multi-purpose and multi-scale decisions that will be discussed in that follows.

In multi-purpose decisions, several purpose are explored simultaneously for idealization. Rating scale for each purpose may be different from others. For instates one purpose be maximizing interest that is rated by money and other purpose be minimizing we of work time that is rated by hours. Sometimes these purposes are not unidirectional and act reversely. For example decision maker wants to increase employees, satisfaction and on the other reduce wage expenses.

Major method of rating multi-purpose models can be called Multi criteria simplex methods (MSC), multiple objective linear programming (MOLP), Goal attainment method, Goal programming (GP), lexicography, simplified interactive multiple objective linear programming, Complex method, surrogate worth trade off method (SWT).

3-2. Multi-attribute decision models [12]

In ranking decision less use in made of multi-purpose decision making techniques and largely multi-scales decision making techniques are used. Multi-scales decision models can be formulized in following matrix form.

A1, A2, … Am in decision matrix D respectively forms motion [13] (e.g. buying airplane from a particular) and x1, x2, … xn indicates n indicator or [14] characteristic such as expense, capacity, profitability, welfare, fame, and so on for better rating of each option. And finally rij elements indicates specific amounts of jth scale for ith option. It is clear that xi scales may be qualitative (such as convenience) or quantitative (such as expense).

Two main categories of different methods in processing available information of a multi-scales

decision problem is presented in literature of topic they include.

A. non- compensating models: these models include methods in which trade- off between attributes is not allowed, namely weakness of one attribute is not compensate by other attribute. There for each attribute in these methods are discussed alone and comparisons are made attribute by attribute.

Some of these models include Dominance methods, maximum method, conjunctive satisfying method, Disjunctive satisfying method, Elimination method, permutation method.

B. compensation models : In compensating models, unlike non-compensating models, trade-off between attributes is allowed and as an example one attributes weakness may be compensated by other attributes, assess. Some of the major models are linear programming for multidimensional analysis of performances.

Technique for order performance similarity to ideal solution, multi-dimensional scaling with Ideal point, Elimination et choice translating reality linear assignment, Analytic Hierarchy process (AHP), Data Envelope analysis, numerical taxonomy.

3-3- Numerical taxonomy and factor analysis

In this section, at first two methods of numerical taxonomy and factor analysis and then ranking method by combining these methods will be presented.

Attributes used for ranking in numerical taxonomy all are considered with the some weight, while function of some attributes is more efficient and important than others. Using analysis of maid factors that factor analysis is one of them, one can rate and identify taxonomy with main factors. In this paper in ranking method we use numerical taxonomy with main factors and combining these two methods in a way that considering obtained attributes, main factors are clouted. Then with the help of numerical taxonomy take this and categorize them.

3-4. Definition of used attributes for ranking

Considering research topic, attributes identification for ranking should be made that apart from geographical and population be refits, economical and trade capabilities and access to understructure equipment in the province level and explored border is identified. In the words, potential and impotential capabilities are considered at the some time. Access to the data of these attributes has a special importance, final attributes that were use for ranking and their final value is parental in table (5).

Table 5. Attributes used for ranking and their final value

Mehran	Khosravi	Shalamche	Unite	Title	Symbol dial
234902147	207198102	135978212	dollar	Exports from the customs border	X1
1630283	1366116	0	Dollar	Customs import value of the boundary	X2
479303	2049246	29034	Million dollar	International transit and border customs value Karen	X3
635951	11810	139078	Person	The number of Iranian passengers entry	X4
586688	10878	151588	Person	The number of outbound travelers to Iran	X5
382893	7338	175733	Person	The number of inbound foreign travelers	x6
638665	6102	185285	Person	The number of foreign travelers output	X7
-190	-250	-450	Kilometer	Distance to Karbala	X8
-190	-280	-380	Kilometer	Distance to Najaf	X9
-240	-520	-180	Kilometer	Distance to Samarra	X10
0	1	0	-	LQ index value of industry	X11
1	0	1	-	LQ index value of agricultural	X12
1	0	1	-	LQ index value of Business	X13
-70	-75	-35	Kilometer	Distance to Iraq's first airport	X14
-90	120	-20	Kilometer	Distance to the first domestic airport	X15
-20	-5	-10	Kilometer	Distance from the main road network in Iraq	X16
-150	-130	-35	Kilometer	Distance from the railway access throughout Iraq	X17
-180	-180	0	Kilometer	Distance from the national rail access to Iran	X18
0	0	0/01	Kilometer on square Kilometer	Railway density in Province	X19
0/06	0/05	0/07	Kilometer on square Kilometer	Density of main road asphalt	X20
18	20	46	Company	The number of companies active transport	X21
9460494	4606440	4367844	Person	Population-based province, 200 kilometers distance	X22
-180	-190	-480	Kilometer	Distance to the capital Baghdad, as Iraqi political	X23
425	330	250	Kilometer	Province along the border	X24

4. Determining importance coefficient of attributes and ranking

For implementing factor analysis and numerical taxonomy method, at first significance coefficient of attributes should be determined by analysis main factors. Then final obtained values are used by taxonomy method for ranking.

4-1. Determining significance coefficient of attributes by analyzing main factors in previous section we were familiarized with analysis of main factor method for determining significance value of each attributes. Here using mentioned method we determine coefficient of each selected attributes. For calculating value of attributes we refer to the results obtained from factor analysis using analysis of main factors on 24 selected attributes by spss 17. In outputs of soft were results two factors were identified and extracted. Total variance of these two factors is 100 e.g. 100% of attributes changes are explained by these two factors. Using rotated component matrix, we deal, with determining relation of each attributes with mentioned factors. The results of this factorial analysis are provided in table. As it can be observed, form 24 explored attributes, 13 attributes correlate with first factor and 11 attributes with second one. Variance

percent of first factors is 58/67 and the second factor is 41/38.

For determining weight of each mentioned attributes after relation with main factors, correction coefficient of mentioned factors and main factors are extracted by component matrix. Then using (17) relation, we determine the weigh of each attributes.

$$wi_{ij} = wF_1 * r_{FiIj} \quad (17).$$

In order that weight of attributes relatively be calcutued and achieve totally, relative weight of each attributes should be calculated with use of (18) relation.

$$WI1 = \frac{WIiy}{\sum_. \sum_j wIiy} * 100 \quad (18)$$

4-2. Ranking by use of numerical taxonomy method

After determining the weight of each attributes, obtained weight is multiplied in attributes number and final values of attributes are used for ranking by numerical taxonomy. After entering weight of each attributes we conducted numerical taxonomy method which results are provided in table 7. As can be observed according to the obtained results the lowest coefficient is related to Mehran border with 18735 then shalamcheh and khosravi borders

respectively with 69126 and 69356 located in following ranks.

So according to the results of conducting factor analysis (by main factors) and numerical taxonomy it seems that hypothesis o research is ratified in this way.

Mehran border has an appropriate trade position for expanding trade with Iraq than other ground borders.

Results and implementation procedures

Growing trend in trade relation of Iraq and Iran and exporting goods to Iraq has made it second exporting partner of our country, Iran. In a way that after Arab united Emirates in 1386, Iraq is the largest hospitable country for exporting goods of Iran. Many features such as joint border, religious and cultural closeness, reconstructing and growing economy of Iraq and many other reasons this market has the capability of improving importing abilities of our country.

Exploring Iraq's geography it is considered that more than 80% of its population and economic, service and cultural equipments and shelters are located in Mideast that is close to Iran's borders and this can be helpful for expanding trade. Currently border trade off with Iraq is made through neighboring border markets and borders. The number of neighboring border markets with Iraq are 13. Also formal, defined borders are khosravi, Mehran and shalamcheh that are respectively located in kermanshah, Ilan and Khuzestan in west and south west of Iran.

One of the ideal methods of location selection in location finding theories is use of ranking for selection of prior regions for attaining expected goal (selection o ideal border region for expanding trade with Iraq). Using numerical taxonomy method, Mheran hold the first rank in ranking explores borders.

The major procedures for expanding trade with Iraq considering results of this research, these procedures are recommended.

1-forming trade arrangement with Iraq (conducting necessary negotiation by head of consul in Iran in different provinces with tows and manager for investment, conducing session in Ilam province with high managers of province0.

2-determining general strategy of trade –economy with Iraq for expanding trade with Iraq.

3-doing necessary commitments (supporting priming industry, negotiating with heads of attracting investment in this country, international fairs in

Najaf, Meson provinces that have cultural and religious closeness with us).

4-considering specific economic area of Mehran for expanding trade with Iraq (especially border trade) .

5-avoiding sudden closing of borders by Iraq government.

6-expanding border terminals

7- bolstering border markets for goods in mission

8-activiating business joint room of two countries and rise for businessmen of two countries.

9-establishment of high transportation corporations and improving Iran transportation associations and firms.

10-creating relation and expanding track lines for goods and passengers transmission between two countries.

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