

**The Survey of Aspect of Chain Supply Model
(The Trade off-Cost Approach) on the Competitiveness and
Increasing of saffron of Iran in Globalization of Competition**

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Abstract

The purpose of this article is to awareness of different rings of chain supply model and analysis entry kind, reasons of entry or don't entry of Iranian producers and exporters firms of saffron to some this chain. this article is intended by using trade off cost economy so that in first step, survey theoretical basis and other studies about this field, also, is designed questionnaire for one of model of Porter (the five competitiveness factors; demand condition, factors condition, services condition, firms structure in competition and government role). The aggregated information lead to design of chain supply model for saffron of Iran. So that, the results show that with the existence of total limitations trade off cost economy can be used for analysis of organizations approaches of chain supply model and the end lead to decreasing export share and for competitiveness power for saffron of Iran in export of world markets.¹

KeyWords: Competitiveness, chain supply model of Porter, trade off cost economy, export of saffron, Iran .

Introduction

With economic globalization and pale geographical borders, significant competition, and nowadays the discussion of competitiveness of nations is a matter of countries . So in today's world of technical and technological gap between developing countries and industrialized countries, competition in the international arena to arena that have similar economic giant to compete with together, and there aren't any place for weak companies. For example, these terms can be cited the competitiveness of saffron of Iran in world markets. Although Iran is responsible for major world saffron production, but the question is hence this is not satisfied with its supply chain the distribution of the product benefits of saffron. Of course, we don't intend to present evidence judgments about good or bad division of available labor, but it is important to note that in the present conditions, benefits based on divided into relations between activists of the modern world supply chain. Therefore, new ideas are tried to express appropriate comprehend from global competitive according to changes in the real world and in the competitive environment created.

For example, in the Porter theory approach that is pivotal study of this research, management toolbox and economy have all combined. Therefore, if products such as saffron, the relative natural advantages (climate and soil), cheap labor led to advantages in production this product in Iran, we will see that low value-added supply chain allocated to Iran. Thus if all production sector barriers were improved, there aren't any significant changes created in distribution of value added yet. The only way to profit from higher share in the supply chain, have knowledge from different rings of this chain and analyses the various types of entry or why entry and not entry some of the Iranian companies to some rings. This investigation is going to using transaction costs economics is taken one step in this direction.

1 - this paper is the result of research work the author in 2009

1 - theoretical foundations

In fact, this present research, have merged three themes, competitiveness, supply chain model and trade off costs. In addition, this research intends to practice the program on selected product (saffron). Therefore, a large volume theoretical and empirical literature in various forms are related to the three themes. Due to limited space in a paper, tried to present a selective literature review and referred to further study (as follows) that have been effective directly in modified and completed research study programs.

1-1) competitiveness of theories (with emphasis on Michael Porter's competitiveness theory)

In table (1) to summarize is given some of the most significant of these theories. According to Porter's theory, less developed countries that their economies are based on comparative advantage (including cheap labor and abundant natural resources) required to improve the determinant of their competitiveness. Low-income countries should remove their relative from comparative advantage and develop theirself competitive advantage.¹ Accordingly, the active private sector should be improve their competitive methods or alter them. To achieve this goal, they need labor, information, infrastructure, suppliers, and better relations. Porter's approach has been made to national competitiveness carefully from his consider in competitiveness determining factors level of wisdom (firm). So Porter's approach to national competitiveness generalized truth competitiveness firm to the total economy.

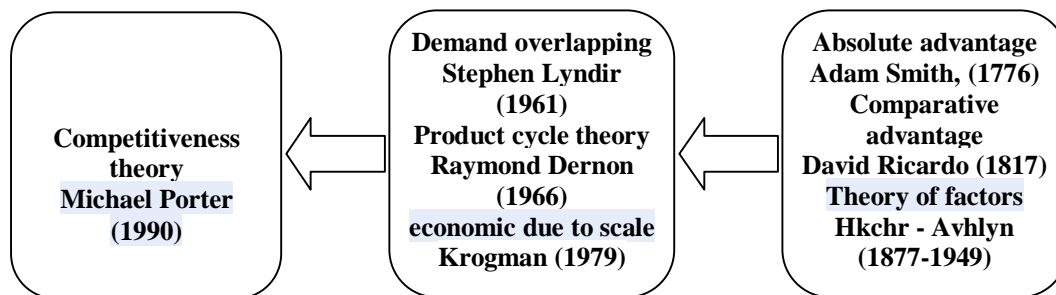


Table (1). Formation process theories of competitiveness from Smith to Porter

1-2) Supply chain model and its competitiveness

Several definitions of supply chain is presented. But generally supply chain is a collection of all such firms that participate directly or indirectly to serve the needs of consumer (Chopra and Myndl, 2002)

Supply chain, including communication among members that this can divided into three flows: flow of goods, funds flow and information flow. Thus, each step from supply chain linked to through the flow goods, information and funds. These flows are shown in the form of agricultural product supply chain in the picture below. In figure (1) production inputs provided to farmers by suppliers, and farmer takes its products to processing user makes. Then the processed product will be offered to consumers by product vendor. This shows the flow of goods from the

1. Porter, 2003

beginning to the end of the chain, ie consumer. On the other hand the funds paid by consumer must return the beginning of the chain (the funds). The information about the characteristics of goods, needs and tastes of consumers also must be exchange between members chain (information flow).

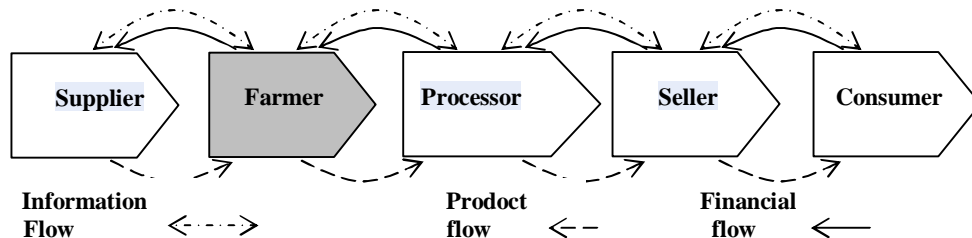


Figure (1): the supply chain of a agricultural product

Integrated marketing assets in foreign trade despite have restriction comes with, increases the competitiveness of the whole chain.

As in figure (2) is shown ,In the supply chain,the value chain a company for compete in a particular industry can be placed in the bigger flow of activities,that is included the value chain suppliers input to the final consumer.This approach is used in cases where the finished product is the result of total activity of several firms - and not a single firm which activate in a supply chain . And competitive advantage is created by optimizing or coordinating this communication.

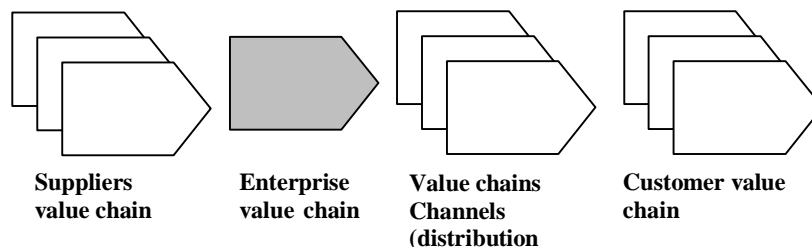


Figure (2): the value system or supply chain
Source: Porter, 1990, p. 43.

1-3) transaction costs model and organizing supply chain

As noted, for investigating the structure of organizing and supply chain competitiveness can be used trade off theory. The starting point of analysis of transaction costs is the Coas article in 1937. Coas explains, why firms exist. He also defined conceptual distinction between firms and market. The key feature of this firms is that the prices mechanism function within it stops and instead allocate interest to be done through command. Economic analysis unit trade off cost is based on two basic assumption about human behavior (limited rationality and opportunism) and three key aspect exchanges (assets limited to a , asset specificity,uncertainty and exchanges frequency) take away from neoclassical analytical device. Now after background research, we will discussed how were impressed supply chain organization structures of saffron from trade off costs.

2 - Background research

2-1) External Studies

Freund and Weinhold (2000); in their research is explained affective factors on technology as an important factor to create comparative advantage and increasing the competitiveness power of countries, and they consider transaction costs from two angles into competitiveness discussed. Angle of the first is related into technology to improve economic infrastructure and reduce trade off costs. For example, expanding the internet has decreased the cost of information. This reduction in cost, depending on the type of industry can be different. Angle of other is affective factors of created or transfer technology.

Walmsley & Ita Kura (2001); have researched in their experimental studies to investigate the effect of governmental policies on foreign business, from this angle that government policies can change transaction costs, they have communicated between transaction costs and competitiveness. For example, they show that with network being the customs of Japan and Singapore trade transaction costs decrease account for 65% in Japan to Singapore and 13% in Singapore to Japan.

Elbadawi (1999); also in research from Africa's foreign trade, adapted together the index of quality of infrastructure services and corruption index. With this justification that the corruption index have shown Government quality infrastructure related to production.

- Gorten and his colleagues (2006); in their research carry out the investigation of dairy products of supply chain in Moldovi, and they indicate to the case of failure of supply chain therefore are above exchange costs. Gorten and his colleagues are understand that capable of measuring the quality of goods in order to avoid false choice offered by suppliers and buyers plays an important role in the success of supply chain.

- Zylbrshtayn and Philo (2003); have tried to research competitiveness dynamically based on the coordination capacity chain of agricultural products. Their results are that all firms, both traditional and modern efficient are operationally. Because their objective function are different. They also express requirements of each of these firms.

- Hobbes and Yang (2001); in their research process indicate the process of market movement of food crops indeveloped countries (such as the United States and Canada) toward more vertical coordination. this research has been result the technology revolution, and a separate biological process food products based on invisible features has changed through the situation by two ways:

1 - In response to growing demand for different food products, brands are expanded and agricultural products have been diversified.

2 - The preservation of intellectual property rights is possibled in the result of changing technology.

The ANZIBA institute (2004); after identification of sugar industry of supply chain in Australia and the factors that cause increased costs of trading in each ring is connected to the solutions offered to reduce these costs. Therefore, the most important results that followed are "the expansion of relationships between the chain rings based on structure of the Trust that its common goal is international competitiveness".

- Bhatnagar and Sohal (2005); researched on the effect of plant location factors, uncertainty and industrial construction methodes on competitiveness of supply chain. In this experimental work, which based on a sample includes 420 industrial manufacturing factories was conducted from Asian countries Singapore, Malaysia, Brunei, Indonesia, Philippines and Thailand, there has been introduced index for supply chain competitiveness. And then expressed some index for three

main effective on supply chain competitiveness (plant location factors, uncertainty and methods of construction industry) and by the methods of econometric the effects of these factors have been shown on supply chain competitiveness in three progress a) only firm b) Industry c) firm + industry, by 147 regression equation.

2-2) Internal studies

These studies include supply chain model, competitiveness and trade off costs economic are not fully or simultaneously and it has been done separately in each of these areas.

2-2-1) studies related to trade off costs

- Kamju and Shams (1997); in the thesis of their master, by using financial statements have been calculated the rate transaction costs from six different areas imposed the company's wool of Iran during the years 1991 to 1996, and have come to the conclusion that the proportion of exchange costs and marginal profit before tax, on average, is 15 and 22 percent respectively.

- Nasiri Aghdam (2001); in his MA thesis have investigated the trade off costs associated with trade financing production – Manufacturing firms in Iran.

- Renani, Mohsen (1997); in the book "market or not market", the effect of trade off costs on the lack of integration of financial markets and size dichotomy of firms in the economy of Iran has evaluated positively. Not only he use system analysis but also used the econometrics methods. He has been calculated transaction costs through legal indexes to ensure the rights of property.

- Arab Mazar and Hosseini (2003); have been studied transaction costs of rural finance. For this purpose, they using questionnaires, they're compared the opportunity costs of obtaining credit from the bank against financing informal ways.

2) studies related to competitiveness -2-2

- The Institution of Business Studies and Research (2008); claims in study titled "The identification of effective factors in competitive advantage of export technical - Engineering services of " by using expert's opinions of engineering services exports model has provided the native model from Porter's pattern (p. 289). The most important discussion about innovation and the alleged results of this study expressed the role of government in several important areas.

1- In providing environment conditions include: Migration and the political environment and legal and national and international stability. 2 - Macro economic policy: money supply, budget deficit, inflation, interest rate, exchange rate, costs and production. 3 - Tariff and trade policies.

4 - Control of Risks 5 - capital market efficiency, labor, goods and organizations 6- Fiscal policy, taxation, subsidy and encouraging 7- applied subsist infrastructure and manpower training.

2-2-3) studies related to international trade

Iran's major empirical studies on international trade related to macroeconomic issues of export expansion and generally the importance of exchange rates (for example silk, 2001) and comparative prices (for example Yavari, 2001) has been noted in the form of export supply and demand models. The research investigated the effects of supportive policies on the export, also have not got deal with the good fundamentals of microeconomy (for example Mehr ara, 1998).

In the field of non-economic factors such as laws and regulations, Topics mainly express descriptive and out of theoretical order that they're not testable. (for example see Pakdaman, 1998). Thus, despite the valuable efforts be done on effective export, generally why not enter the

institutional factors on related models, this is impossible doing practical policy and realistic based on the results of this work.

3 - Research Methodology

3-1) stages of research and data analysis tools and statistical society:

Generally, this research has been done in three stages. The first stage is more librarian studies and the second and third stages integrated documented studies and non documented studies. In total, 100 questionnaires has been sent through post office or face to face and e-mail or fax. And also one questionnaire has been designed proportional to the Porter's five competitiveness factors (demand conditions, factor conditions, conditions of service support, firms structure and competitive, the role of Government). Finally, by using collected information, the competitiveness of supply chain of saffron was analyzed. In the third stage, the analysis of supply chain saffron was conducted by using transaction costs. In this stage a questionnaire was prepared for making quantitative some of main index of transaction costs (asset limitation, uncertainty, exchanges frequency) and the method of organizing firms. The mentioned questionnaire has been sent for all exporters of saffron that received the commercial card. All of data came into SPSS software and initial statistical analysis was done on it. Finally, econometric model associate with relationship of organize formed and indexes of transaction costs economics tested by EVIEWS software.

3-2) modeling and research hypotheses

In supply chain of Saffron three integration matter have more importance:

1 - Integration processing of saffron in saffron production.

2 - Integration processing of saffron in foreign trade

3 - Integration foreign extensive marketing of saffron in foreign trade. Considering the project's focus on foreign trade cycle, integration processing and foreign extensive marketing will be analyzed in foreign trade of saffron. Therefore, this hypothesis was raised that "the exporter firms that merge integration processing and foreign extensive marketing of saffron in foreign trade, will supply product with high quality and more valuable. The main study hypotheses described briefly:

- whatever restriction assets were less, the motivation of firm for applying higher levels of control (merger) is less and vice versa.

- whatever environmental uncertainties were higher and exchanges need to have less exchange special possessions, the motivation of firm for applying higher levels of control (merger) is less and vice versa.

- whatever behavioral uncertainties were higher, the incentives of firms for applying higher levels of control (merger) is higher and vice versa.

- whatever frequency or exchange's repeat were higher, the incentives of firms for applying higher levels of control (merger) is higher and vice versa.

- whatever frequencies of exchanges were higher and in this exchanges the behavioral uncertainty was higher, the incentives of firms for applying higher levels of control (merger) is higher and vice versa. To examine this hypothesis, the mathematical model is corrected as follows:

$$Y_t = a_0 + a_1 X_{t1} + a_2 X_{t2} + a_3 X_{t3} + a_4 X_{t4} + a_5 X_{ti} * X_{tj} + e_t$$

In above pattern that Y_t is defined as a qualitative variable, illustrate the organize approach of firm. The X_{t1} index in the above model illustrate the restriction assets of firm and X_{t2} illustrate the behavioral uncertainties and X_{t3} index illustrate the behavioral uncertainties and X_{t4} illustrate the frequency or exchanges repeat. $X_{ti} * X_{tj}$ also illustrate the interaction influence on independent variables.

Conclusions and Recommendations

4 - Results:

To express the results will try to evaluate and test that study hypotheses were about the merger in processing and foreign marketing of saffron by using statistical tools.

4-1) Hypotheses test about the integration in stage of processing

Table (2) shows the correlation between the dependent variable (degree of integration four level in processing stage) with the explanatory variables. First hypothesis: whatever the asset limitation is less, the incentive of firms applying a higher degree of control (merger) is less. To examine this hypothesis were used from variable related to restriction of human assets that is the employment problems in the company. Among these problems, only the skills problem with the degree of integration in the processing stage has significant positive correlation.

Second hypothesis: whatever environmental uncertainty was higher and exchange's needs for exchange assets were less the incentive of firms applying a higher degree of control (merger) is less.

In the questionnaire, environmental uncertainty was stipulated based on purchasing process problems (drought, government policies (guaranteed purchasing) and price changes). Of among these problems, no variable with degree of integration stage of processing is significantly correlated.

Third hypothesis: whatever behavioral uncertainty is higher the incentive of firms applying a higher degree of control (merger) is more. Behavioral uncertainty has been evaluated on the basis of "the amount of fraud in the purchase stage of saffron" and "export experience". The results show that the degree of integration of these two variables in the processing stage of saffron have no significant correlation.

Fourth hypothesis: whatever frequency or exchange's repeat is higher, the incentive of firms applying a higher degree of control (merger) is more. For measurement the amount of exchanges frequency was used "The number of Parties in the exchange to buy saffron". This variable with integration degree has a significant positive correlation in saffron processing stage.

Fifth hypothesis: whatever the frequency of exchanges is higher and in this exchanges the behavioral uncertainty is higher, the incentive of firms applying a higher degree of control (merger) is more. This hypothesis is evaluated by correlation degree tools that its results have been shown there are no significant correlation between "The number of Parties in the exchange to buy saffron" and "The integration of saffron processing". However is used from "the amount of fraud in the purchase stage of saffron" as an controller variable.

4-2) Hypotheses test about the integration in external marketing stage

Evaluation results and testing hypotheses related to the integration of external marketing based on the correlation between dependent variables (degree foreign marketing integration stage) with explanatory variables are came in tables (4 and 5) as follows:

First Hypothesis: whatever restriction assets is less the incentive of firms applying a higher degree of control (merger) is less and vice versa. To examine this hypothesis were used from variable related to asset limitation (the superiority of foreign companies) and human assets restriction (employment problems in sales). Among these variables, only variables "foreigners superior in terms of brand and strong business relationships" has significant positive correlation with degree of integration in external marketing stage.

Second hypothesis: whatever the environmental uncertainty is higher and exchange's need to swap assets is the incentive of firms applying a higher degree of control (merger) is less. In the questionnaire, environmental uncertainty based on sales process problems (including negative publicity of competitors, sanctions, fix exchange rates, high domestic inflation, government policies (guaranteed purchasing) and bank facilities) is stipulated. Among these problems, only the variable of domestic inflation is a significant negative correlation with integration degree of external marketing stage.

Third hypothesis: whatever behavioral uncertainty is higher the incentive of firms applying a higher degree of control (merger) is more. Behavioral uncertainty based on "export experience" and "the amount of fraud in the purchase stage of saffron" have been evaluated. The results show that the degree of integration of these variables have not significant correlation in foreign marketing stage.

Fourth hypothesis: whatever frequency or exchange's repeat is higher, the incentive of firms applying a higher degree of control (merger) is more. For measurement the amount of exchanges frequency was used from " Number of foreign parties for exchange", " The number frequency of exchange with foreign parties" and " The proportion of two former customer". The results show that these variables with the degree of integration have not significant correlation in saffron external marketing stage.

Fifth hypothesis: whatever frequency of exchanges is higher and also behavioral uncertainty is higher in exchanges, the incentive of firms applying a higher degree of control (merger) is more. This hypothesis is evaluated with the degree of correlation tools, and its results show that there are no significant correlation between "integration of (four level and two level) external marketing of saffron" and " Number of foreign parties for exchange", whereas from " The likely to cheat foreign parties " and " firm experience" variables were used as a control variable lonely and with together.

Table (2); correlation between the dependent variable (degree of four level integration in processing stage) with explanatory variables

Explanatory variable	Illustrative	Correlation	Significant	Frequency
Number of employees		0.30	0.14	16
Saffron exports in the year		0.34*	0.09	17
Employment problems in the company: Insurance, Taxes	restriction of human asset	-0.22	0.45	11
Employment problems in the company: Expertise	restriction of human asset	0.67	0.09	6
Employment problems in the company: Information	restriction of human asset	-0.23	0.41	11
Employment problems in the company: Seasonality	restriction of human asset	0.05	0.85	11
Export history	behavioral uncertainty	0.23	0.26	17
The amount of fraud in purchase stage of saffron	behavioral uncertainty	0.20	0.48	10
Buying stage problems: Drought	environmental uncertainty	0.18	0.50	12
Buying process problems: Government policies	environmental uncertainty	0.07	0.79	13
Buying stage problems: Price changes	environmental uncertainty	-0.20	0.41	15
Number of parties in the exchange to buy saffron	frequency of exchanges	0.21	0.31	16
Integration process the foreign trade in firms (four level)	The relationship of two integration with together	0.54**	0.02	17

1.** Significant in 5 percent level and * Significant in 10 percent level 2. Kendal correlation

Table (3); correlation between the dependent variable (degree of two level integration in processing stage) with explanatory variables

Explanatory variable	Illustrative	Correlation	Significant	Frequency
Number of employees		0.26	0.25	15
Saffron exports in the year		0.48**	0.03	16
Employment problems in the company: Insurance, Taxes	restriction of human asset	0.20	0.52	10
Employment problems in the company: Expertise	restriction of human asset	0.82*	0.08	5
Employment problems in the company: Information	restriction of human asset	-0.30	0.34	10
Employment problems in the company: Seasonality	restriction of human asset	-0.04	0.90	10
Export history	behavioral uncertainty	0.23	0.30	16
The amount of fraud in purchase stage of saffron	behavioral uncertainty	0.06	0.84	9
Buying stage problems: Drought	environmental uncertainty	0.33	0.27	11
Buying process problems: Government policies	environmental uncertainty	0.31	0.30	12
Buying stage problems: Price changes	environmental uncertainty	0.18	0.37	14
Number of parties in the exchange to buy saffron	frequency of exchanges	0.39*	0.08	15
Integration process the foreign trade in firms (two level)	The relationship of two integeration with together	0.22	0.40	16

1.** Significant in 5 percent level and * Significant in 10 percent level 2. Kendal correlation

Table (4); correlation between the dependent variable (four level integration in external marketing) with explanatory variables

Explanatory variable	Illustrative	Correlation	Significant	Frequency
Number of employees		0.24	0.25	16
Saffron exports in the year		0.47**	0.02	17
Foreigners superiority in machinery	asset restriction	0.38	0.18	10
Foreigners superiority in brand	asset restriction	0.29	0.27	12
Foreigners superiority in specialist staff	asset restriction	0.50	0.16	7
Foreigners superiority in strong commercial relations	asset restriction	0.24	0.40	11
Foreigners superiority in market information	asset restriction	-0.39	0.22	8
Foreigners superiority in distribution network	asset restriction	0.06	0.84	10
Employment problems in the company: insurance, taxes	restriction of human asset	0.17	0.54	11
Employment problems in the company: Expertise	restriction of human asset	0.33	0.40	6
Employment problems in the company: Information	restriction of human asset	-0.05	0.86	11
Employment problems in the company: Seasonality	restriction of human asset	0.05	0.85	11
Negative publicity of foreign countries about Iranian saffron	environmental uncertainty	0.40	0.14	11
Political sanctions (Bank)	environmental uncertainty	-0.22	0.37	13
Remain fixed exchange rate	environmental uncertainty	-0.30	0.35	8
High inflation	environmental uncertainty	-0.62**	0.03	11
Government policies (price guarantee)	environmental uncertainty	-0.17	0.55	11
Export history	behavioral uncertainty	0.09	0.65	17
Foreign parties likely to cheat	behavioral uncertainty	0.38	0.15	14
Number of foreign parties to exchange	frequency of exchanges	0.04	0.88	12
Visit trade with foreigners	frequency of exchanges	0.13	0.63	10
The first two clients share	frequency of exchanges	0.00	1.00	10

1.** Significant in 5 percent level and * Significant in 10 percent level 2. Kendal correlation

Table (5); correlation between the dependent variable (two level integration in external marketing stage) with explanatory variable

Explanatory variable	Illustrative	Correlation	Significant	Frequency
Number of employees		-0.12	0.61	15
Saffron exports in the year		0.29	0.20	16
Foreigners superiority in machinery	asset restriction	0.34	0.29	9
Foreigners superiority in brand	asset restriction	0.47*	0.10	11
Foreigners superiority in specialist staff	asset restriction	0.20	0.62	6
Foreigners superiority in strong commercial relations	asset restriction	0.53*	0.09	10
Foreigners superiority in market information	asset restriction	0.00	1.00	7
Foreigners superiority in distribution network	asset restriction	0.25	0.44	9
Employment problems in the company: insurance, taxes	restriction of human asset	0.20	0.52	10
Employment problems in the company: Expertise	restriction of human asset	0.00	1.00	5
Employment problems in the company: Information	restriction of human asset	0.30	0.34	10
Employment problems in the company: Seasonality	restriction of human asset	0.18	0.57	10
Negative publicity of foreign countries about Iranian saffron	environmental uncertainty	0.41	0.18	10
Political sanctions (Bank)	environmental uncertainty	-0.03	0.91	12
Remain fixed exchange rate	environmental uncertainty	0.22	0.55	7
High inflation	environmental uncertainty	-0.37	0.24	10
Government policies (price guarantee)	environmental uncertainty	-0.31	0.33	10
Export history	behavioral uncertainties	0.14	0.52	16
Foreign parties likely to cheat	behavioral uncertainties	-0.19	0.47	14
Number of foreign parties to exchange	frequency of exchanges	-0.03	0.90	11
Visit trade with foreigners	frequency of exchanges	-0.09	0.77	9
The first two clients share	frequency of exchanges	0.06	0.84	9

1.** Significant in 5 percent level and * Significant in 10 percent level 2. Kendal correlation

5 - Recommendations (An application for Policy):

- 1 - To avoid telling the total and the consideration necessity to micro approaches for the policy.
- 2 -To strengthen the association to control the destructive competition in foreign trade of saffron.
- 3 - Considering the relationship interaction issues of each chain cycle with the other rings issues.
- 4 - create advanced factors in production-loop of supply chains

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