



Determining Factors in Competitiveness of Iran in Agriculture Sector

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ABSTRACT

The main objective in this research is to study the determining factors in competitiveness of Iran in agriculture sector. This research is applied and it uses descriptive-correlative method. The statistical population in this research included 750 experts of Fars Province Agriculture Jihad Organization. The population size was determined to be 174, using Cochran formula and the simple random sampling method was used in this process. The instrument used in this research was researcher-made questionnaire which was prepared and executed considering the literature and the professors' opinions. To test the validity of the questionnaire, content validity was used. Also, in order to determine the reliability of the questionnaire, Cronbach's alpha was used and the alpha for the questionnaire was 0.85. to analyze the data, measures of central tendency (mean, median, mode, frequency and percentage) and index of dispersion such as standard deviation, frequency distribution table, and variance, and in order to access and rank the studied items, coefficient of variance were used. Also, among the inferential or analytical statistics which were used to determine and study the relationship between the variables and their impacts, Spearman correlation coefficient was used for ranking variables. Regression was used for the explaining factors. It has to be mentioned that SPSS software was used to analyze the data. The results suggested that there is a significant relationship between variables related to the infrastructural, economic, legal, managerial, educational technological, production conditions factors and competitiveness in agriculture sector, at 1 percent. Also, results from multiple Regression indicated that in the first stage, the variable which entered the equation was the legal factor that shows that the aforementioned variable had the highest impact.

Keywords: competitiveness factors, infrastructural factors, economic factors, legal factors, managerial factors, educational technological factors, agriculture

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INTRODUCTION

According to the approaches based on the resources, organizations are constituted of a set of resources which are of a great significance in obtaining competitive advantage and the features and specifications of the resources determine the advantage and its level of stability. (Ma, 1999)

On the other hand, in the approaches based on the market, sectors should be customer-oriented, market-oriented, innovative and entrepreneur and have a high tendency towards learning in order to obtain a sustainable competitive advantage. Based on this approach, tendency towards market is an important resource for reaching a competitive advantage of a sustainable type. (Liu et al., 2003)

It has to be mentioned that in Iran, most resource of foreign exchange earnings comes from exporting one good (oil) only, and the income from it is invested in new technologies and increasing productive power. Considering the circumstances, if the economy faces a risk, the economic development plans will face issues. Hence, considering non-oil exports is of a great importance in order to deal with such situations and confronting its adverse impacts on sustainable economy. Among non-oil exports, agricultural exports, considering its current potentials, could have a great impact in providing

independence and development process and it could have a special position in Iran's macroeconomics. (Rasekh Jahromi, 2007)

Porter refers to four main features for a country and based on their properties, they could create competitive advantage or block it. (Porter, 1999) This holds true in agriculture sector. These four factors include:

- Conditions of Production Factors: The conditions of a country based on production factors such as skilled workforce or infrastructures of a country (region) which are important for competing in a certain sector.
- Conditions of Demand: The nature of the domestic demand for products and services of an industry.
- Related and Supporting Industries: The presence or lack of suppliers and related industries in a country (region) which are competitive in international level.
- Strategy, Structure, Competitiveness: The current situation in a country which govern the establishment, organization and management and the nature of the domestic competition.

In the global context, products could survive in the global market which have a competitive power. In order to reach this goal, the agriculture sector, due to various reasons such as the climatic condition and the abundance of natural resources and potentials, plays a great role in production and non-oil exports. (Gilak Hakim Abadi et al., 2016) Nevertheless, the changes in competitiveness in agriculture sector could depend on the

changes in factors such as changes in the price of the purchased supplies, changes in the technical efficiency of production of other products – which could be considered as other options in production, changes in the price of studied products and changes in the price of other products related to the produced crops. However, when all countries are considered, the main elements of competitiveness in agriculture sector include efficiency and relative costs, policies and exchange rate. (Yazdanpanah and Taheri, 2004) Considering the abovementioned, the question is that: What are the determining factors in competitiveness of Iran in agriculture sector?

METHODOLOGY

This research is applied and it uses descriptive-correlative method. The statistical population in this research included 750 experts of Fars Province Agriculture Jihad Organization. The population size was determined to be 174, using Cochran formula and the simple random sampling method was used in this process. The instrument used in this research was researcher-made questionnaire which was prepared and executed considering the literature and the professors' opinions. To test the validity of the questionnaire, content validity was used. Also, in order to determine the reliability of the questionnaire, Cronbach's alpha was used and the alpha for the questionnaire was 0.85. to analyze the data, measures of central tendency (mean, median, mode, frequency and percentage) and index of dispersion such as standard deviation, frequency distribution table, and variance, and in order to access and rank the studied items, coefficient of variance were used. Also, among the inferential or analytical statistics which were used to determine and study the relationship between the variables and their impacts, Spearman correlation coefficient was used for ranking variables. Regression was used for the explaining factors.

FINDINGS

The results from the statistical analysis are as the following:

Conditions of Production Factors

Considering the data in Table 1, the prioritization of the rates of participants' agreement with items related to the conditions of production factors are presented and the top priorities include the quality if the raw materials, the accessibility to the raw materials and human resources efficiency. Other priorities are presented in the table.

Table 1. Distribution of Participants based on Prioritizing their Agreement with Conditions of Production Factors

Conditions of Production Factors	Mean	Standard Deviation	Changes Coefficient	Prioritization
Quality of the Raw Materials	4.95	1.25	0.25	1
Accessibility to the Raw Material	4.64	1.35	0.29	2

Human Resources Efficiency	4.86	1.41	0.29	2
Considering the General Condition of the Farms and Farmers as the Real Situation	4.70	1.44	0.31	3
Presence of Facilities related to Production	4.75	1.53	0.32	4
Accessibility to Proper Human Resources	4.33	2.00	0.46	5

Economic Factors

Considering the data in Table 2, the prioritization of the rates of participants' agreement with items related to the economic factors are presented. Return of investment and easy access to financial and capital resources have the top priorities.

Table 2. Distribution of Participants based on Prioritizing their Agreement with the Skills related to the Economic Factors

Economic Factors	Mean	Standard Deviation	Changes Coefficient	Prioritization
Return of Investment	5.01	0.97	0.19	1
Easy Access to Financial and Capital Resources	4.78	1.16	0.24	2
Inflation Rate	4.97	1.40	0.28	3
Access to Finance and Stock Market	4.99	1.46	0.29	4
Interest Rate Level	5.11	1.51	0.30	5
Ability to Use Foreign Investment Opportunities	4.93	1.51	0.31	6
Providing Sufficient Finance and Financial Resources for Conducting Research	4.99	1.59	0.32	7
Providing Sufficient and Available Finances	5.39	1.80	0.33	8
Exchange Rate	4.87	1.64	0.34	9
Providing Appropriate Subsidies	4.77	2.39	0.50	10

Infrastructural Factors

Considering the data in Table 3, the prioritization of the rates of participants' agreement with items related to the infrastructural factors are presented and the quality of the main infrastructures (roads, harbors, power) and advanced infrastructures (remote communications and supplies) were the priorities.

Table 3. Distribution of Participants based on Prioritizing their Agreement with the Skills related to the Infrastructural Factors

Infrastructural Factors	Mean	Standard Deviation	Changes Coefficient	Prioritization
Quality of the Main Infrastructures (Roads, Harbors and Power) and Advanced Infrastructures (Remote Communications and Supplies)	4.29	1.11	0.26	1
Using E-Commerce Services and Tools	3.86	1.13	0.29	2
Accessibility to Business and Information Market	4.28	1.25	0.29	2
Creating Correct Competition in Foreign Trades	4.49	1.47	0.33	3

Legal Factors

Considering the data in Table 4, the prioritization of the rates of participants' agreement with items related to the legal factors are presented. Creating a healthy competition through removing monopolies and including plans for improving competitiveness of agriculture section as a main part in the framework of macrostructure and agriculture policies had the highest priorities while factors such as development and improvement of policies based on allocation of competitiveness in agriculture sector based on the requirements of the agriculture of Iran and adopting suitable policies by the government in imports and exports had the lowest priorities.

Table 4. Distribution of Participants based on Prioritizing their Agreement with the Skills related to the Legal Factors

Legal Factors	Mean	Standard Deviation	Changes Coefficient	Prioritization
Creating Healthy Competition through Omitting Monopolies	4.35	1.01	0.22	1

Including Plans for Improving Competitiveness of Agriculture Section as a Main Part in the Framework of Macrostructure and Agriculture Policies	4.50	1.05	0.23	2
The Quality of Demand and Regulations Standards	4.48	1.28	0.29	3
Establishing Flexible Labor Market and Law	4.16	1.25	0.30	4
Enforcing Coordinated Monetary and Financial Regulations and Policies to Grow Efficiency	4.51	1.41	0.31	5
Government Support of Exports	4.49	1.47	0.33	6
Passed Laws by the Government	4.43	1.49	0.34	7
Adopting Suitable Policies in Imports and Exports	4.09	1.45	0.35	8
Development and Improvement of Policies based on Allocation of Competitiveness in Agriculture Sector based on the Requirements of the Agriculture of Iran	3.85	1.49	0.39	9

Managerial Factors

Considering the data in Table 5, the prioritization of the rates of participants' agreement with items related to the managerial factors are presented. Presence of domestic demands, presence of related and supporting industries and presence of professional suppliers are the three high priorities.

Table 5. Distribution of Participants based on Prioritizing their Agreement with the Skills related to the Managerial Factors

Managerial Factors	Mean	Standard Deviation	Changes Coefficient	Prioritization
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Presence Domestic Demand	4.60	1.25	0.27	1
Presence of Related and Supporting Industries	4.63	1.48	0.32	2
Presence of Professional Suppliers	4.36	1.43	0.33	3
Determining the Customers' Demand Change Rate	4.40	1.50	0.34	4
Presence of Natural Resources and Primary Production Factors in the Country	4.34	1.72	0.40	5
Presence of Skilled and Professional Manpower in Region Activities	4.27	1.80	0.42	6
Prediction of the Purchasers' Understanding and Awareness	4.44	1.91	0.43	7
Managing Methods and Goals of the Individuals Present in the Related Industries	4.21	1.82	0.43	7
Presence of Aware, Dynamic and Huge Domestic Market (Demand Condition)	3.68	1.75	0.47	8
Presence of Key Competitors in the Region	4.18	2.11	0.50	9

Educational Technological Factors

Considering the data in Table 6, the prioritization of the rates of participants' agreement with items related to the managerial factors are presented. The three main priorities included the conducted national researches and dedicated budgets, applied trainings for the marketing and sales forces, facilitation of establishment, development and exploitation of demand-oriented participations.

Table 6. Distribution of Participants based on Prioritizing their Agreement with the Skills related to the Educational Technological Factors

Managerial Factors	Mean	Standard Deviation	Changes Coefficient	Prioritization
Conducted National Researches and Dedicated Budgets	4.95	1.12	0.23	1
Applied Trainings for the Marketing and Sales Forces	4.45	1.14	0.26	2
Facilitation of Establishment, Development and Exploitation of Demand-Oriented Participations	4.58	1.18	0.26	2
Technological Innovations	4.69	1.30	0.28	3
Creating Quality Improving Technologies (as the most important non-priced factor of competitiveness)	4.13	1.16	0.28	3
Increase in Investment Space of Villagers	4.66	1.35	0.29	4
Facilitation of Establishment, Development and Exploitation of Private Sector	4.11	1.21	0.29	4
Network and Data Programs Implementation	4.18	1.45	0.35	5
Human Resources Training Rate	4.17	1.55	0.37	6
Supporting Collaborative Projects	4.25	1.69	0.40	7
Increase in the Innovations in Successful Value Chain	4.06	1.65	0.41	8
Creating New Production Cooperation	4.19	1.73	0.41	8
Presence of Educational and Research Centers	4.09	1.71	0.42	9

Competitiveness of Agriculture Sector

Considering the data in Table 7, the prioritization of the rates of participants' agreement with items related to the competitiveness of agriculture sector are presented.

Table 7. Distribution of Participants based on Prioritizing their Agreement with the Skills related to the Competitiveness of Agriculture Sector

Competitiveness of Agriculture Sector	Mean	Standard Deviation	Changes Coefficient	Prioritization
Correct Investment	4.99	0.85	0.17	1
Effective Use of Information Technology	4.59	0.80	0.17	1
Marketing Potentials	4.51	0.98	0.22	2
Innovating Potentials	4.36	0.95	0.22	2
Capital Per Capita and Total Productivity of Production Factors	4.32	1.08	0.25	3
Ability to Manage International Business Processes	4.26	1.14	0.27	4
Quality of Provided Products and Services	4.26	1.23	0.29	5
Predictability	4.21	1.23	0.29	5
Presence of Financial Data	4.05	1.21	0.30	6

Analytical Statistics:

Pearson correlation coefficient was used to test the research hypotheses. In explaining the fact that infrastructural factors have a positive and significant on competitiveness of agriculture sector. Results from Pearson correlation coefficient between two infrastructural factors and competitiveness of agriculture sector ($r=0.536$) suggests that there is significant relationship between the two variables at 1 percent. Hence, the hypothesis is approved at 99 percent and the hypothesis of lack of relationship is rejected.

Also, the hypothesis on the positive and significant effect of economic factors on competitiveness of agriculture sector, the results form correlation coefficient between the two variables of skills related to the economic factors and competitiveness of agriculture sector ($t=0.370$) indicates the fact that there is a significant relationship between the two variables at 1 percent. Also, the hypothesis on the positive and significant effect of educational technological factors on competitiveness of agriculture sector, the results form correlation coefficient between the two variables of skills related to the educational technological factors and competitiveness of agriculture sector ($t=0.468$) shows the fact that there is a significant relationship between the two variables at 1 percent.

The hypothesis on the positive and significant effect of managerial factors on competitiveness of agriculture sector, the results form correlation coefficient between the two variables of skills related to the managerial factors and competitiveness of agriculture sector ($t=0.427$) shows the fact that there is a significant relationship between the two variables at 1 percent.

Also, the hypothesis on the positive and significant effect of legal factors on competitiveness of agriculture sector, the results form correlation coefficient between the two variables of skills related to the legal factors and competitiveness of agriculture sector ($t=0.658$) shows the fact that there is a significant relationship between the two variables at 1 percent.

Also, the hypothesis on the positive and significant effect of conditions of production factors on competitiveness of agriculture sector, the results form correlation coefficient between the two variables of skills related to the conditions of production factors and competitiveness of agriculture sector ($t=0.362$) shows the fact that there is a significant relationship between the two variables at 1 percent.

Table 8. The Results of Analytical Statistics Used for Research Hypotheses Test

Hypothesis	Dependent Variable	Independent Variable	Correlation Coefficient	Sig.	p Value
1	Infrastructural Factors	Competitiveness of Agriculture Sector	Pearson	0.000	0.536**
2	Economic Factors	Competitiveness of Agriculture Sector	Pearson	0.000	0.370**
3	Educational Technological Factors	Competitiveness of Agriculture Sector	Pearson	0.000	0.468**
4	Managerial Factors	Competitiveness of Agriculture Sector	Pearson	0.000	0.427**
5	Legal Factors	Competitiveness of Agriculture Sector	Pearson	0.000	0.658**
6	Conditions of Production Factors	Competitiveness of Agriculture Sector	Pearson	0.000	0.362**

** at 99%

Regression analysis provides the opportunity for the researcher to predict the changes in dependent variable through the independent variables and determine the share of each of the independent variables in explaining the dependent variables. This part deals with the statistical method and using the stepwise method, three variables of legal, managerial and economic factors were inserted in the stepwise multiple Regression equation, respectively. In the stepwise method, the strongest variables are inserted in the equation and this continues until the test significance error reaches 5 percent. The method is studied in the following:

Table 9. Various Stages of Inserting Independent Variables in Dependent Variable

Variable	R	R Square	Adj R Square	F	Sig.
Legal Factors	0.804	0.647	0.646	594.41	0.000
Managerial Factors	0.823	0.677	0.675	338.4	0.000
Economic Factors	0.845	0.714	0.712	268.53	0.000

Table 10. Effect Level of Effective Variables on Dependent Variable

Stage	Variable	B	B Standard Error	Beta	t	Sig.
1	Legal Factors Constant	1.39	0/057	0/804	2.728	0.007
		12.02	4.40		24.38	0.000
2	Legal Factors Managerial Factors Constant	1.61	0.067	0.927	3.43	0.001
		0.513	0.094		23.89	0.000
		14.60	4.25		5.45	0.000
3	Legal Factors Managerial Factors Economic Factors Constant	1.37	0.073	0.789	18.70	0/018
		0.73	0.095		7.76	0/000
		0.28	0.044		6.50	0/000
		9.68	4.07		2.37	0/000

In the first stage, the variable which is inserted in the equation is the legal factors and that indicates that the variable has the highest effect. In this stage, the correlation coefficient is $R=0.804$ and the coefficient of determination is $R^2=0.647$ and also, the adjusted coefficient of determination is $R^2_{AD}=0.646$ which shows that the legal factors variable explains around 64 percent of the changes in dependent variable.

In the second stage, the managerial factors variable is inserted in the equation. In this stage, the correlation coefficient is $R=0.823$ and the coefficient of determination is $R^2=0.677$ and also, the adjusted coefficient of determination is $R^2_{AD}=0.675$ which shows that the legal and managerial factors variables explain around 67 percent of the changes in dependent variable. In the third stage, the economic factors variable is inserted in the equation. In this stage, the correlation coefficient is $R=0.845$ and the coefficient of determination is $R^2=0.714$ and also, the adjusted coefficient of determination is $R^2_{AD}=0.712$ which shows that the three variables explain around 71 percent of the changes in dependent variable.

DISCUSSION AND CONCLUSION

Results from the correlation suggested that there is a significant relationship between the variables related to infrastructural, economic, legal, managerial, educational technological, conditions of production factors and competitiveness of agriculture sector at 1 percent. Hence, the research hypotheses are approved at 99 percent and hypotheses of the lack of relationship are rejected.

Also, the results for multiple Regression showed that in the first stage, the variable which is inserted in the equation is the legal factors and that indicates that the variable has the highest effect. In this stage, the correlation coefficient is $R=0.804$ and the coefficient of determination is $R^2=0.647$ and also, the adjusted coefficient of determination is $R^2_{AD}=0.646$ which shows that the legal factors variable explains around 64 percent of the changes in dependent variable. In the second stage, the managerial factors variable is inserted in the equation. In this stage, the correlation coefficient is $R=0.823$ and the coefficient of determination is $R^2=0.677$ and also, the adjusted coefficient of determination is $R^2_{AD}=0.675$ which shows that the legal and managerial factors variables explain around 67 percent of the changes in dependent variable. In the third stage, the economic factors variable is inserted in the equation. In this stage, the correlation coefficient is $R=0.845$ and the coefficient of determination is $R^2=0.714$ and also, the adjusted coefficient of determination is $R^2_{AD}=0.712$ which shows that the three variables explain around 71 percent of the changes in dependent variable.

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