

# Identifying and Prioritizing the Environmental Factors Affecting the Development of Entrepreneurial Components among Rural Farmers (Case study: Sardouyeh District, Jiroft County)

AliAkbar Anabestani \*<sup>1</sup>, Seyyed Reza Hoseini Kahnouj \*<sup>2</sup>

<sup>1</sup> Professor, Department of Geography & Rural Planning, Ferdowsi University of Mashhad, Mashhad, Iran.

<sup>2</sup> Ph.D. Student, Department of Geography & Rural Planning, Ferdowsi University of Mashhad, Mashhad, Iran.

\* Corresponding Author, Email: [anabestani@um.ac.ir](mailto:anabestani@um.ac.ir)

## ABSTRACT

The importance of entrepreneurship and the environmental factors affecting it is so much that during two recent decades it has become an essential topic among researchers and scholars; such that some researchers have called this period as the age of entrepreneurship. The present study aims at identifying and prioritizing the environmental factors affecting the development of entrepreneurial components among rural farmers. The methodology of the study is applied from the point of view of purpose. The area studies in this research includes the inhabitants of the villages with more than 50 households in Sardouyeh rural district; and the research units are the owners of successful businesses and innovators in agriculture sector. The criteria for selecting the sample population was being engaged in the challenges in development of entrepreneurship. 50 people were selected as the sample society randomly, and then the questionnaires were distributed among them. The obtained results were analyzed by using grey TOPSIS and fuzzy TOPSIS models; combining these models by merging technique indicated that the studied rural areas affect the development of entrepreneurial components at different levels among which Kahnouj Sadat rural area (1.16) and Dareh Roud (2.5) are at the highest levels, while Garikan rural area (9.5) and Dowlatabad (8.66) are the lowest levels.

**Key words:** *Environmental factors, rural entrepreneurship, Grey Relation Analysis, Fuzzy TOPSIS, Merging technique*

## Introduction

Rural entrepreneurship is creating a new activity which introduces new productions or services or creates new markets and applies new technology in rural context (Heriot, 2002: 2). Entrepreneurship is considered as a strategy for variety and creating vast job opportunities; such that politicians consider it as the key to prevent rural turbulence, the villagers view it as an instrument to improve their income, and women look at it as the possibility for working near their homes which brings

them independence and decreased need to society supports. Actually for all these groups, entrepreneurship and employment, is an instrument to improve life quality for people, families, and communications, the consequence of which, is a healthy environment and economy (Pasban, 2004: 281). The importance of this word is so much that during two recent decades, it has become a socioeconomic subject (Fayolle & Gaily, 2008: 572)

and the base for creation of many new careers in many villages (Dahlstrand, 2007: 357); it leads to increased economic efficiency and creates the basics for innovation, marketing and production and improves employment, hence it seems significantly necessary (Shane and Ventakaraman, 2002). Because of all these positive effects during the recent decade, many developing countries such as Iran consider entrepreneurship as an essential solution for various problems including inefficiency in economy, increased unemployment rate, and ... (Karimi et al, 2012: 125). Enriching entrepreneurship components and creating appropriate avenues for its development are instruments for the development of countries, particularly developing countries. According to the universal entrepreneurship statement, there is a high correlation between economic growth and the level of national entrepreneurship activities. Entrepreneurs exist potentially in each country; the effort should be made to increase their abilities, and more importantly the existing structures should allow them to express themselves (Najafi Kani et al, 2015: 38). In other words, entrepreneurs play key roles in economic development and social evolutions; they have always been considered as the main elements in accelerating the development in developing countries. Due to its role in economic development and growth, governors in many developed and developing countries try to encourage as many people with entrepreneurship capabilities as possible to launch entrepreneurial activities (Ghavami et al, 2008: 12). Entrepreneurs are constantly trying to make their dreams and creative ideas come true. However, successful entrepreneurship is an art rather than being an economic activity; defining this artistic activity according to existing methods is very difficult because of the intangible characteristics of a successful entrepreneurship (Sarah & Alistair, 1999: 115). Yet apparent is the fact that to be successful, a person needs a variety of personal traits and skills. However even if all personal conditions are prepared, success will not be obtained unless the environmental factors are provided

appropriately (Razghandi, 2009: 40). Regarding the importance of environmental factors, there have been few studies including Bruno and Tabiji (1982), who observe factors such as provision of risky capital, experienced entrepreneurs, skillful labor force, access to customers, access to new markets, proximity to the universities and scientific centers, appropriate land and facilities, access to transformation facilities, and appropriate living conditions as the environmental factors affecting entrepreneurship. Frank (2003) introduces the important environmental factors to be "perceived barriers" and "perceived supports". Also Frank and Loutje (2004) says that both macro environmental factors (including the market and government policies) and micro environmental factors (like university) re important for new businesses to be created. The study by Turker and Salkuk (2009) in Turkey indicated that environment and supportive structure (for instance economic conditions which provide a lot of opportunities for entrepreneurs) affect entrepreneurship. Motiei Langroudi et al (2012) studied the factors affecting empowerment of villagers in the development of entrepreneurship (case study: rural districts Zand and Samen in the city of Malayer) and found that personal and environmental factors impact the increase of villagers' abilities to create and develop businesses. Imani et al (2016) identified and prioritized the factors affecting the institutionalization of executing aspects of organizational entrepreneurship in automobile manufacturing company Kerman Motors, and analyzed the processing method of hierarchical analyzing AHP. After pair comparison and calculating the relative weights entrepreneurship training obtained the highest rank among the identified factors and the other factors obtained the next ranks: research and development activities, communication networks, human resources of entrepreneurs, high management support, encouraging entrepreneurial behaviors, dynamism of business environment, entrepreneurial organizational culture, entrepreneurial organizational structure, entrepreneurial strategic planning, complexity of relationships in the value

chain, mercy in business. Shahyazi Menshadi et al identified and prioritized the strategic factors affecting small and medium businesses using hierarchical analyze method (a study in ceramic tile industry), regarding the important role of small and medium industries in economic development of the country. According to the results of this study, high technologic power and high added value was the most effective factors among domestic factors, and access to potential regional markets and threat of joining to world trade organization are the most important ones among the foreign factors affecting the boost of small and medium sized businesses. Also the weakness/threat (WT) strategy was chosen as the best strategy to excel in this industry. Pezeshki et al (2017) investigated and ranked the factors impacting the development of entrepreneurship in Amir Abad special economic zone; the population of their study included different groups of shipping companies, port operators, transport companies, investors, owners of goods, clearance performers, and so on. Data analysis was performed by descriptive and inferential statistics using SPSS and components ranking was done by Friedman method. Their findings indicated that in the scope of investors the behavioural, structural, and environmental components were ranked first to third respectively. In the other scopes, structural, behavioural, and environmental were ranked first to third respectively. Each of the above mentioned studies has presented its own view and theoretical framework toward effective environmental factors; sometimes some factors have been considered as superior and they have been merely studied from one dimension regardless the internal and external barriers. As it was mentioned before, various factors contribute, and in the present study we have tried to investigate the effective environmental factors in rural district of Sardouyeh in the city of Jiroft, regarding the fact that this city as one of the agricultural poles having necessary potentials, can be able to provide the ground for entrepreneurship. Actually, the biggest challenge in this regard is

recognizing the factors making an entrepreneurship successful. Therefore, the present study is going to evaluate the effectiveness coefficient of environmental factors on entrepreneurial traits.

### **Theory and Methodology**

Entrepreneurship is defined as the process of creating value by providing a unique combination of resources to make use of an opportunity requiring entrepreneurial acts and factors. Entrepreneurial act is conceptualizing and implementing an idea, a product process, service, or a new business. Behaviorally, an entrepreneurial process includes a set of actions required for identifying and evaluating an opportunity, defining a commercial and working concept, identifying the required resources, obtaining necessary resources and implementing and exploiting the business (Tousi et al, 2014: 4).

Generally, one of the factors affecting rural development is entrepreneurship, because it can have an effective role in improving economic conditions in villages by creating new income and employment opportunities. Therefore, it is important to evaluate entrepreneurship among villagers and efforts for developing and reinforcing entrepreneurship in the process of rural development through providing its primary grounds (Rezvani and Najarzadeh, 2008). In order to prove whether entrepreneurship can be raised as a strategy and solution in rural development, first the goals of rural development planning should be identified, so that we can conclude how effective entrepreneurship is to achieve these goals. The goals of rural development can be identified first through the existing definitions in rural development, second through the experts' views, organizations, and different national and international organs, and finally through the policies and plans followed by the government (Heydari Mokarar et al, 2012: 8).

Alison believes that an entrepreneurial activity is affected by a variety of factors including personal

traits and motives, training, culture and traditions, policies, and technical knowledge which can lead to various results and consequences with regard to behavioral, economic, and social patterns. Lord Kipanidze suggests that entrepreneurship development in rural areas depend on sociocultural, infrastructural and environmental, economic, and institutional factors (Najafi Kani et al, 2015: 42).

Economic factors: lack of capital in rural areas results from low income and leads to low savings, and it is a big challenge for rural development. Today the efforts by rural people to obtain economic stability can be increased by using local entrepreneurs; because focusing on local economic resources through development of local entrepreneurship is a way to develop the economy in these areas (Heaton, 2005: 1).

Institutional (organizational) factors: entrepreneurship cannot be implemented without taking the role of different organizations and institutions into consideration; because every kind of activity requires organizing on different national and local levels. Government, and related organizations are among these institutions; on the other hand, non-governmental free-formed local institutions are highly effective in growth and development of entrepreneurial activities (Najafi Kani et al, 2015: 43).

McLand counts the characteristics of entrepreneurs as improvement motive, risk taking, inner control, creativity, and independence demanding. Bayer citing Zali et al (2007) identified six characteristics for the entrepreneurs by analyzing more than 50 studies: commitment, leadership, opportunity-oriented, tolerance in risks and ambiguities, creativity, self-confidence and able to adapt, and high motivation (Ahmadi et al, 2012: 147).

## **Methodology**

The methodology of the present study is descriptive-analytic and applied with regard to the purpose. The study case of this research includes the inhabitants of the villages with more than 50 households located in Sardouyeh rural district in the city Jiroft; the research units are business owners and successful innovators in agriculture, among whom 50 people were selected randomly as the sample, and the questionnaires were distributed among them. In the present study efforts have been made to investigate the external (environmental) factors and present solutions for developing entrepreneurship. It requires collecting and categorizing the environmental factors and components affecting the development of entrepreneurship which has been achieved by literature review. In the first phase of collecting data and information, we used library review (using books and articles) in the second phase of data collecting, we tried to gain the opinions of entrepreneurs in agriculture toward the environmental factors by designing appropriate questions. In order to calculate the validity of the questionnaire face validity method was used. Once the validity of questionnaire was confirmed by people with experience in entrepreneurship, data was collected from the sample. To calculate the reliability, we used Cronbach Alpha internal adaption. The results of the Cronbach Alpha were calculated using SPSS for each of the questions related to the main factors. It was calculated as 0.83 and 0.79 for human capital and cultural component from the social sub sector respectively; as 0.765, 0.715, and 0.755 for commercial dimension, bankrupting, and physical capital from economic dimension respectively; 0.689 and 0.795 for relational capital and structural capital from environmental sub sector respectively. Therefore the questionnaire has favorable reliability.

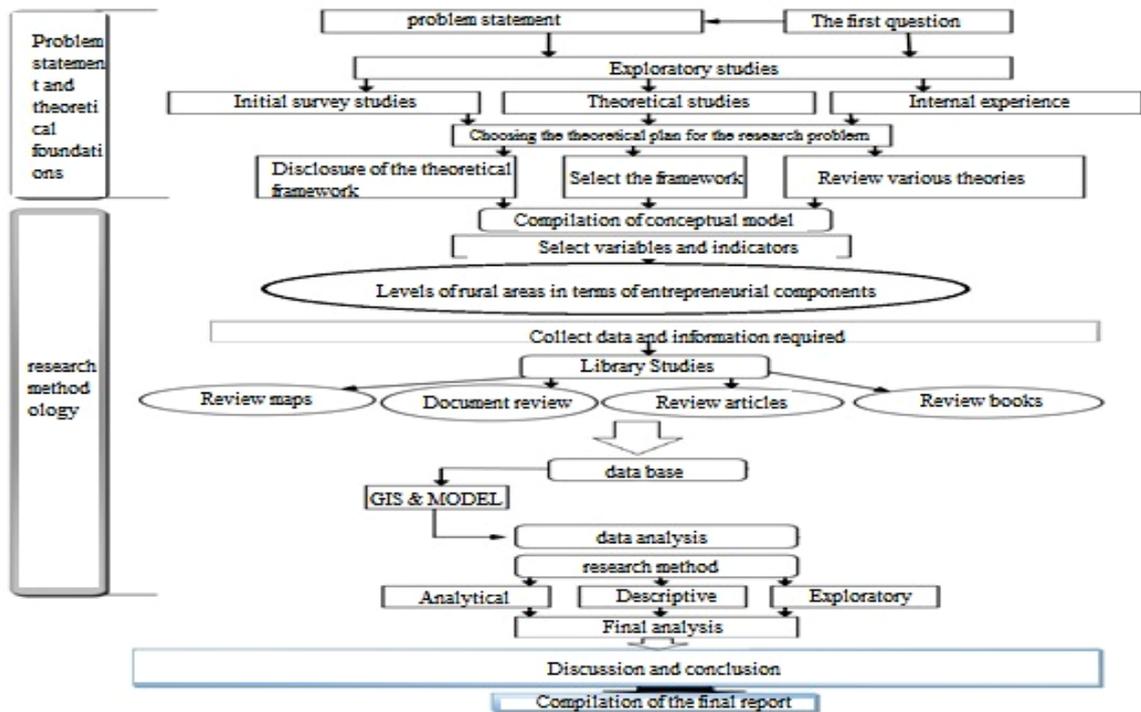


Figure 1: Conceptual model of research

Table 1: components used in the study

Dimension	Component	Entrance indices	
Social	Human capital	Perception of entrepreneurial opportunities by the entrepreneurs	
		Knowledge and awareness of entrepreneurs to launch a business	
Social	Cultural capital	Tendency to entrepreneurship and creating businesses	
		Entrepreneurs' risk taking in business environment	
		Tendency to independence in earning income	
		Entrepreneurs' Social status	
Economic	Financial aspects	Positive attitude toward risk taking in society	
		Attitude toward entrepreneurship... as an appropriate job opportunity	
		Entrepreneurs' attitude toward social and ethical responsibility	
	Financial Bankrupt	Private sector investment in created businesses	
		Lack of support for the private sector investors	
		Access to goods markets and internal services (free market environment)	
		Access to commercial information for entrepreneurs	
	Environmental	Physical capital	Ease of the rules in registering and transferring the ownership of the created businesses
			Presence of brokers and dealers in the market
			Lack of appropriate market for the productions
Capital relational		Inappropriate partnership	
		Disinclination to select competitive strategies on the market	
		Access to information and communicational infrastructures (road, transformation, telephone, internet, ...)	
		Permission for founding new businesses	
Environmental	Capital structural	Difficulty in founding business	
		Legal support from new business bankrupt	
	Capital structural	Ease of access to foreign goods market to import and export goods	
		Ease of access to new and modern technologies	
		Using modern technologies in order to communicate with the customers	
		The direct contact between the entrepreneurs and the customers	
Environmental	Capital structural	Customers' complains about the products	
		Implementation of the policies encouraging entrepreneurship	
	Capital structural	Evaluation of training quality in entrepreneurship courses in educational centers	
		Implementation of supportive rules	
Environmental	Capital structural	Applied courses presented in educational centers related to the guild	

In order to analyze the results of the study in the form of merging model, two techniques were used: fuzzy TOPSIS and grey TOPSIS. Fuzzy TOPSIS model is appropriate for prioritizing models (Taghvaei

et al, 2011: 11) presented by Huang and Yun in 1981 (Hew, 2008: 22). The concept of this model is selecting the shortest distance from the positive ideal solution and the longest distance from the negative ideal

solution (Jadidi et al, 2008: 763). One of the important benefits of fuzzy TOPSIS technique is that we can use both subjective and objective criteria and indices simultaneously (Pourtaheri, 2010: 114). The criteria in the grey method is transferring the performance of all options into a comparable sequence. This phase is called creating grey designing relation. According to this sequence, a reference sequence (ideal goal sequence) is defined, then the coefficient of grey relation is calculated between all comparable sequences and the reference sequence. Finally, according to the coefficient of the grey relationship, the grey rank between the reference sequence and each comparable sequence is calculated. If the comparable sequence of an option is in the highest rank between the reference sequence and itself, then that option is the best. When the units whose performances are measured, are different with regard to different traits, the effect of some traits may be ignored; it will happen if some performance traits have a wide domain. In addition, if the goals and direction of the traits are different, the

results of the analysis will be untrue (Huang and Liao, 2003).

In the normalization process it is necessary that all performance values for each option are processed. It is called creating grey relation in GRA.

## Results and Discussion

According to the findings 83.4% of the respondents were male, 52% were 50-60 years old, and 46.3% had the education under diploma. Also about 26.8% of them had farming lands with the area under cultivation of 1 to 2 acres whose average annual sale is 5 to 10 million Tomans. Table 2 shows the ranking average of the environmental factors affecting the development of entrepreneurial components among the rural farmers in the area under study. Accordingly, the components access to goods and service markets, presence of dealers and brokers, direct contact between entrepreneurs and supportive customers, and implementation of the supportive rules affect entrepreneurship development.

**Table 2: prioritizing the environmental factors affecting entrepreneurial development among rural farmers**

<i>factors</i>	<i>Items</i>	<i>Ranking average</i>	<i>Standard deviation</i>	<i>Changes coefficient</i>
Human capital	Entrepreneurs' perception of entrepreneurial opportunities	2.22	1.16	0.52
	Entrepreneurs' knowledge and awareness to launch a business	2.61	0.85	0.33
	Tendency to entrepreneurship and creating business	3.01	1.18	0.39
	Entrepreneurs' risk taking in business context	3.09	1.52	0.49
	Tendency to independence in earning income	2.89	0.83	0.29
Cultural capital	Social status of the entrepreneurs	2.85	0.48	0.17
	Positive attitude toward risk taking in the society	3.02	0.95	0.31
	Considering entrepreneurship as an appropriate job	2.55	1.22	0.48
	Entrepreneurs' attitude toward social and ethical responsibility	2.35	1.06	0.45
Financial aspects	The capital of private sector in created businesses	2.64	0.88	0.33
	Lack of support from the private sector investors	3.10	0.64	0.21
	Access to goods and service markets	3.09	1.27	0.41
	Access to commercial information for entrepreneurs	2.18	0.25	0.11
	Ease of the rules of registering and transferring the ownership of the created businesses	3.50	0.38	0.11
	Presence of brokers and dealers	3.01	0.91	0.30
Financial bankrupt	Lack of an appropriate consuming market for the products	1.99	0.81	0.41
	Inappropriate partnership	3.06	1.12	0.37
	Unwillingness to select competitive strategies in the market	2.23	0.45	0.20
Physical capital	Access to information and communication infrastructures (road, transportation, telephone, internet, ...)	2.85	0.68	0.24
	Time spent for getting the necessary permissions to launch new businesses	2.24	0.81	0.36
	Difficulty level in stablishing business	2.01	1.06	0.53
	Legal support from bankrupted businesses	2.98	1.00	0.34
	Ease of access to foreign goods market in order to import and export the products	3.11	0.79	0.25
	Ease of access to modern technologies	2.63	0.33	0.13
	Using modern technologies to communicate with customers and rivals	2.26	1.09	0.48
	Direct contact between the entrepreneurs and customers	2.18	1.01	0.46
	Customers' complains about the presented products	3.11	0.74	0.24
	Relational capital			
Structural capital	Implementation of the policies encouraging entrepreneurship	3.08	1.60	0.52
	Evaluation of training quality in entrepreneurship courses in educational centers	2.99	1.22	0.41
	Implementation of supportive rules	3.15	0.39	0.12
	Applied courses presented in educational centers related to the guild	2.77	0.36	0.13

In order to describe the environmental factors affecting entrepreneurial components development among rural farmers, we used the distance of standard deviation from mean. In this method the effective factors were categorized using mean and standard deviation (ISDM). The categories are weak, medium, high, and very high:

$A < \text{Mean. St.d}$ : A = Weak

$\text{Mean. St.d} < B < \text{Mean}$ : B = Medium

$\text{Mean} < C < \text{Mean} + \text{St.d}$ : C = High

$\text{Mean} + \text{St.d} < D$ : D = Very high

According to the findings in table 3 it is confirmed that more than half (66%) of the rural people evaluated the above mentioned as low to medium with regard to the environmental factors affecting the entrepreneurial components among the rural farmers.

**Table 3: frequency distribution of the respondents based on the environmental factors affecting entrepreneurial components development among the rural farmers**

<i>Explain</i>	<i>Frequency</i>	<i>Percent</i>	<i>درصد تجمعی</i>
Weak	14	28	28
Medium	19	38	66
High	8	16	82
Very high	9	18	100

**Table 4: values of evaluation of the indices using fuzzy TOPSIS model**

<i>Value</i>	<i>0.81-1</i>	<i>0.61-0.8</i>	<i>0.41-0.6</i>	<i>0.21-0.4</i>	<i>0-0.2</i>
Situation	Developed	Relatively developed	Under developing	Relatively deprived	Deprived of development

Source: Ataei, 2010: 65

Table 5 and figure 3 show this point clearly that the level of all villages is lower than the favorable level, and most of the villages in Sardouyeh rural district are not at a normal level. Regarding the environmental

factors, Kahnouj Sadat village ranks in the first place with the score of 0.388, and Zourak village ranks in the second place with the score of .0322. While the villages Seyfabad and Garikan rank in the last places.

**Table 5: the results of prioritizing the environmental factors affecting entrepreneurial components among rural farmers using fuzzy TOPSIS model**

<i>Villages</i>	<i>Seyfabad</i>	<i>Darreh Roud</i>	<i>Kahnouj-Sadat</i>	<i>Nahr-Kamal</i>	<i>Darrehiee</i>
Score	0.255	0.312	0.338	0.291	0.300
Ranking	9	4	1	7	6
Villages	Dahane-Zourak	Garikan	Pol-Piran	Dovlatabad	Sahebabad
Score	0.322	0.237	0.305	0.284	0.320
Ranking	2	10	5	8	3

Source: Research finding, 2017

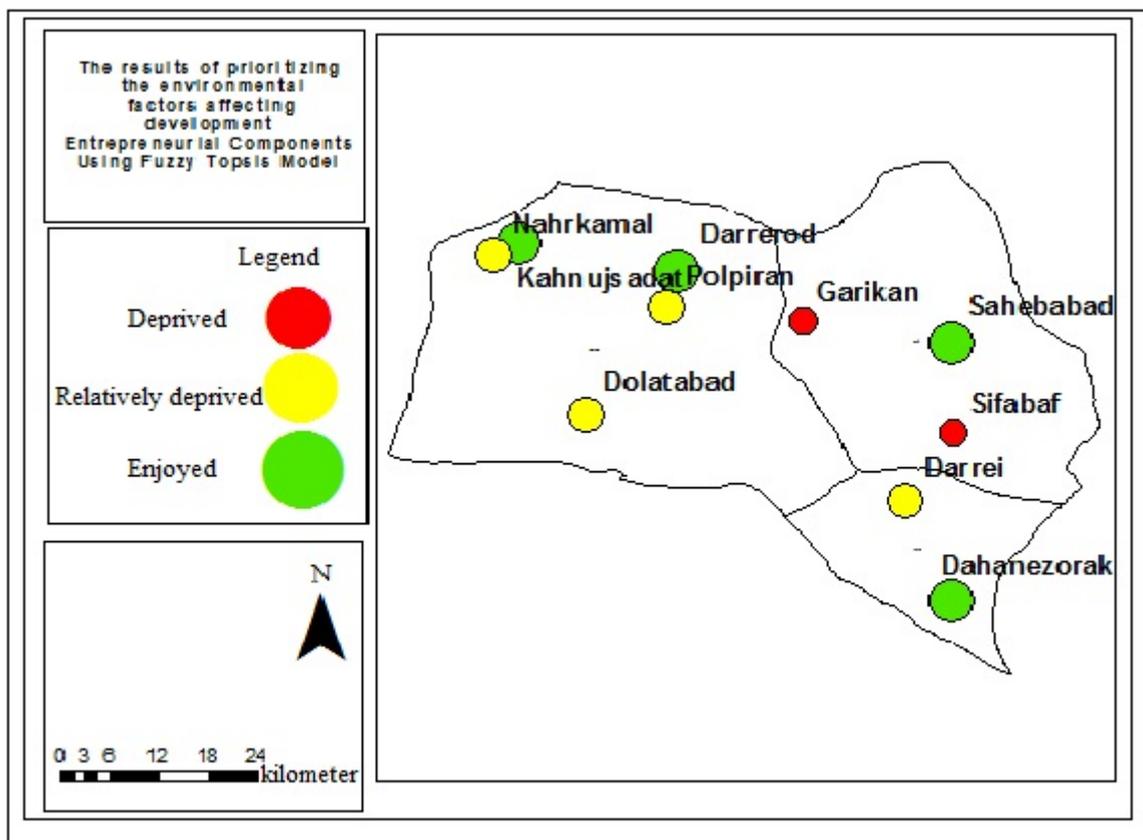


Figure 2: the map of prioritizing the environmental factors affecting the entrepreneurial components among rural farmers using fuzzy TOPSIS model (Source: Research finding, 2017)

**The results obtained in GRA model**

In grey calculations, like fuzzy TOPSIS model, the closer the value to 1, its spatial distribution is more favorable. Table 6 shows the weight of the indices for each village. Regarding the environmental factors affecting people cognition, Nahr Kamal village was in

the first place with the score of 0.680, and Kahnouj Sadat village was in the second place with the score of 0.664, while Pol-Piran and Dahane-Zourak villages were in the last places.

Table 6: the results of prioritizing the environmental factors affecting the entrepreneurial components among rural farmers using Grey TOPSIS model

Villages	Seyfabad	Darreh Roud	Kahnouj-Sadat	Nahr-Kamal	Darrehiee
Score	0.594	0.664	0.664	0.680	0.617
Ranking	5	3	2	1	4
Villages	Dahane-Zourak	Garikan	Pol-Piran	Dovlatabad	Sahebabad
Score	0.496	0.564	0.504	0.563	0.586
Ranking	10	7	9	8	6

Source: Research finding, 2017

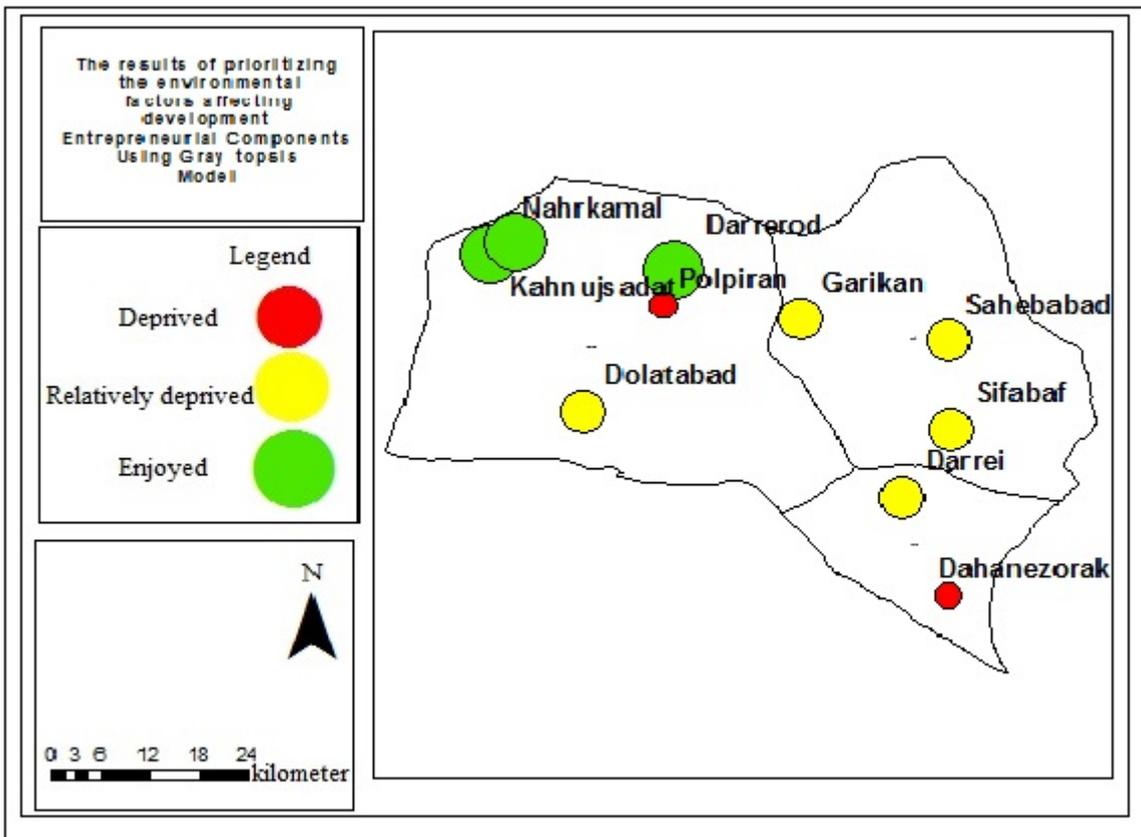


Figure 3: the map of prioritizing the environmental factors affecting the entrepreneurial components among rural farmers using Grey TOPSIS model (Source: Research finding, 2017)

**Average of ranks method**

In this method, the average of the ranks obtained from different decision making multi criteria methods is calculated for each option and accordingly the options are ranked. The average of the ranks was calculated by fuzzy TOPSIS and GRA methods for the rural areas in Sardouyeh rural district and the results indicated that

Kahnouj Sadat and Dareh Roud are ranked in first and second place, while Garikan and Dovlatabad were ranked in the last places with regard to environmental factors affecting the development of entrepreneurial components (table 7).

Table 7: ranking average the average of the ranks of the environmental factors affecting the development of entrepreneurial components among rural farmers

Villages	Seyfabad	Darreh Roud	Kahnouj-Sadat	Nahr-Kamal	Darrehiee
Fuzzy TOPSIS	9	4	1	7	6
GRA	5	3	2	1	4
Average Ratings	7	3.5	1.5	4	5
Village	Dahane-Zourak	Garikan	Pol-Piran	Dovlatabad	Sahebabad
Fuzzy TOPSIS	2	10	5	8	3
GRA	10	7	9	8	6
Average Ratings	6	8.5	7	8	4.5

Source: Research finding, 2017

**Borda method**

This method is based on the principle of majority. In order to make decisions in this method, pair comparison matrix is performed among the options. If according to different decision making methods the

number of priorities of one option is more than the number of its overcome on another option, it will be dedicated by M; and if there is no majority in the same comparison, or the votes are the same, it is coded by X (lose). M indicates the priority of the row over the

column and X indicates the priority of the column over the row. Each pair comparison is performed separately. The number of the comparisons is equal to  $m(m-1)/2$  in which  $m$  indicates the number of the options. The criterion for priority in this method is that the number of winnings for option that is  $m$ , is in majority.

According to Borda method, each pair of the areas are compared, the results of which are shown in table 8. Then we will rank them. According to table 9, Kahnouj Sadat, Dareh Roud, and Nahr Kamal are at the highest level.

**Table 8: the results of pair comparisons and the number of lost and win for each factor based on Copeland technique**

Villages	Seyfabad	Darreh Roud	Kahnouj-Sadat	Nahr-Kamal	Darrehiee	Dahane-Zourak	Garikan	Pol-Piran	Dovlatabad	Sahebabad
Seyfabad		X	X	X	X	M	M	X	M	X
Darreh Roud	M		X	M	M	M	M	M	M	M
Kahnouj-Sadat	M	M		M	M	M	M	M	M	M
Nahr-Kamal	M	X	X		M	M	M	M	M	M
Darrehiee	M	X	X	X		M	M	M	M	X
Dahane-Zourak	M	X	X	X	X		M	M	M	X
Garikan	X	X	X	X	X	X		X	X	X
Pol-Piran	X	X	X	X	X	X	M		M	X
Dovlatabad	X	X	X	X	X	X	M	X		X
Sahebabad	M	X	X	X	M	M	M	M	M	

Source: Research finding, 2017

**Table 9: identifying and prioritizing the environmental factors affecting the development of entrepreneurial components among the rural farmers based on Borda method**

Explain	Seyfabad	Darreh Roud	Kahnouj-Sadat	Nahr-Kamal	Darrehiee	Dahane-Zourak	Garikan	Pol-Piran	Dovlatabad	Sahebabad
Borda	3	8	9	7	5	4	0	2	1	6
Final ranking	7	2	1	3	5	6	10	8	9	4

Source: Research finding, 2017

**Copeland method**

It is the modified version of Borda method. The only difference is that in prioritizing, in addition to the number of the wins the number of losses are calculated for each option as well. Therefore, the options are prioritized based on the difference between number of

wins ( $\sum C$ ) and number of losses ( $\sum R$ ). According this technique (table 10) Kahnouj Sadat, Dareh Roud, and Nahr Kamal, are at the highest level with regard to the environmental factors affecting entrepreneurial components.

**Table 10: identifying and prioritizing the environmental factors affecting the development of entrepreneurial components among rural farmers based on Copeland method**

Villages	Seyfabad	Darreh Roud	Kahnouj-Sadat	Nahr-Kamal	Darrehiee	Dahane-Zourak	Garikan	Pol-Piran	Dovlatabad	Sahebabad
$\sum C$	3	8	9	7	5	4	0	2	1	6
$\sum R$	6	1	0	4	2	5	9	7	8	3
$\sum C - \sum R$	-3	7	9	3	3	-1	-9	-5	-7	3
Rank	7	2	1	3	5	6	10	8	9	4

Source: Research finding, 2017

**Merging method (Combining the results obtained form 3 methods: Ranking averages, Borda & Copeland)**

It is possible that the rural areas get different rankings in different techniques. Such that according to fuzzy TOPSIS model, an area gets ranking 1, and gets

ranking 3 in VIKOR method. In this case to eliminate the differences and for a consensus in rankings we can use a merging method like ranking averages, vector method, or Copeland method. In this stage we should come to consensus according three prioritizing strategies. Then the rankings of the relevant indices are

obtained by the three methods, then the results of three methods are merged and the average is calculated for each area. Finally, the areas are ranked based on the results of the merging method and the final rank is obtained.

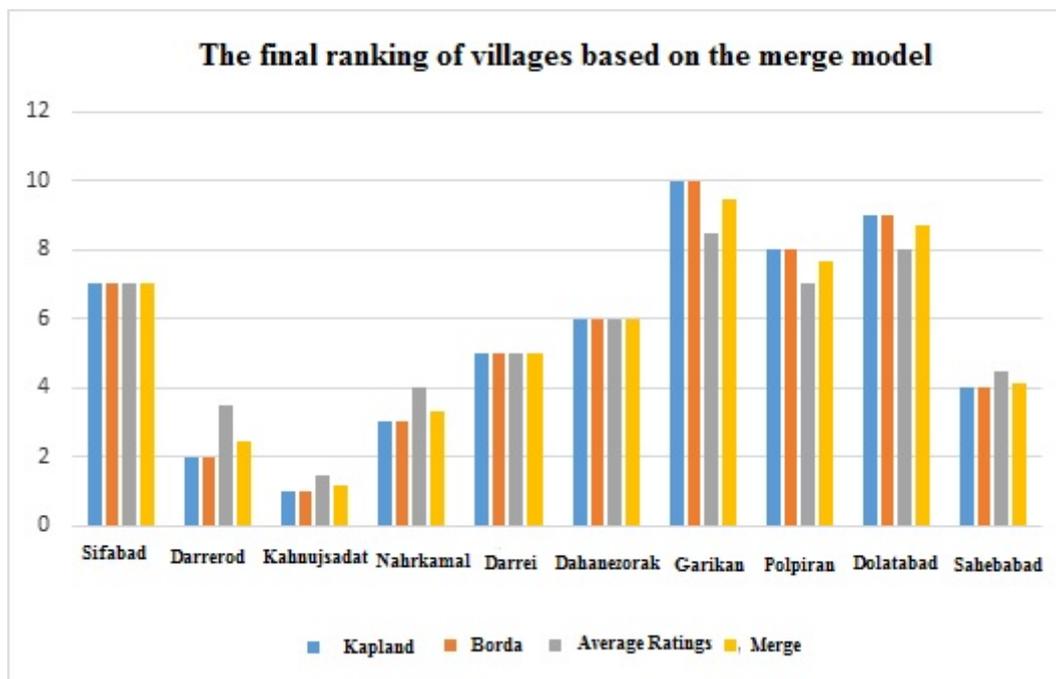
**Table 11: final ranking of the villages according to merging**

مناطق	Seyfabad	Darreh Roud	Kahnouj-Sadat	Nahr-Kamal	Darrehiee	Dahane-Zourak	Garikan	Pol-Piran	Dovlatabad	Sahebabad
<b>Copeland</b>	7	2	1	3	5	6	10	8	9	4
<b>Borda</b>	7	2	1	3	5	6	10	8	9	4
<b>Average Ratings</b>	7	3.5	1.5	4	5	6	8.5	7	8	4.5
<b>Merging</b>	7	2.5	1.16	3.33	5	6	9.5	7.66	8.66	4.16

Source: Research finding, 2017

According to table 11, the villages in Sardouyeh rural district are at different levels, among which Kahnouj Sadat (1.16), and Dareh Roud (2.5) are at the highest

level; and Pol-Piran (7.66), Dowlat Abad (8.66), and Garikan (9.5) are the most deprived areas.



**Figure 4: rankings of the villages according to merging method**  
(Source: Research finding, 2017)

**Conclusion**

Effectiveness of entrepreneurship on economic and social growth and development in rural areas is so clear that some experts called this period, the age of entrepreneurship. Such that in new development

theories, entrepreneurship is considered from two points of view: solution aspect that is empowerment and capacitating local communities that lead to reorganization and rearrangement of the economic structures in local societies and help a dynamic and

competitive economy (Oser & Volery, 2012: 28); instrumental aspect to achieve meritocracy and demonstrate the abilities of the entrepreneurs to realize the goals, social inclusion and employment (Elijah Esema & Stefanovic, 2014: 422). Meanwhile empowering the environmental components of entrepreneurship (inspired by systemic approach) in rural communities leads to optimal use of the existing sources, and creates the ground for growth, prosperity and persistence of rural life places. Because entrepreneurship increases permanence and employment in villages by providing appropriate and enough income which can attract capital and human resources out of the village. Of course all the villages are not at the same level regarding entrepreneurship development; and according to what Motie Langroudi et al (2012) said, presence of individual and environmental factors in empowering rural people affects creation and development of new businesses which requires providing infrastructures and developing them. In the present study, we prioritized the villages in Sardouyeh rural district with regard to environmental indices affecting entrepreneurship development. For this purpose, we used 4 main indices, 8 sub-indices, and 31 items which were studied by distributing questionnaires with Likert scale among 50 people in this district. The results obtained from fuzzy TOPSIS model indicates well that all the villages are at levels lower than appropriate level. With regard to effective environmental factors, Kahnouj Sadat with the score of 0.338 is at the first place, Dahane Zourak with the score of 0.322 is in the second place; and Seyf Abad and Garikan are in the last places. In grey calculations, like fuzzy TOPSIS model, the closer the dedicated value to 1, its spatial distribution is more favorable. With regard to environmental factors affecting people's cognition, Nahr Kamal with the score of 0.680, is in the first place and Kahnouj Sadat with the score of 0.664 is in the second place; while Pol-Piran and Dahaneh-Zourak is in the last place. The results obtained from combining these models by merging method indicated that the studied rural areas

are in different levels regarding prioritizing the factors affecting entrepreneurship among which Kahnouj Sadat (1.16) and Dareh Roud (2.5) are at the highest levels; while Garikan (9.5) and Dowlatabad (8.66) are at the lowest levels. In this regard in order to promote entrepreneurship capacities and achieve sustainable development, the following suggestions are presented:

- Capacitating and preparing appropriate grounds for entrepreneurship in rural areas.
- Identifying strengths and weaknesses of the villages to exploit the rural areas optimally and appropriately.
- Making the rural environment interesting by purposeful development of spaces and operations in the villages.
- Creating centers for accessing experienced entrepreneurs.

Financially supporting entrepreneurs and granting low benefit loans to reinforce entrepreneurial ideas.

#### **Acknowledgements**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

#### **References**

- Ahmadi, F., Shafei, R. & Mafakherinia, F. (2012). Investigating the effects of individual and environmental factors on entrepreneurial behaviors among the students in Kurdistan University. *Journal of Entrepreneurship Development*, 4(15), 145-163.
- Ataei, M, (2010). *Fuzzy multi-criteria decision making*, 1st edition, Shahroud industrial University publications
- Bruno, A. V. & Tyebjee, T. T. (1982). The environment for entrepreneurship. In Kent, C., Sexton, D., Vesper, K. (Eds) *the Encyclopedial of Entreoreneurship*. Englewood cliffs, NJ
- Dahlstrand, A. (2007). *Technology-based entrepreneurship and regional development: the*

- case of Sweden. *European Business Review*, 19(5), 373-386.
- Elijah Esema, Isaac, Stefanovic, Sasa (2014). Professional education and youth empowerment through entrepreneurship for socio-economic development in Nigeria. *International Conference, Employment, Education and Entrepreneurship*, 15-17 October 2014 Belgrade Serbia.
- Fayolle, A., & Gailly, B. (2008). From craft to science: Teaching models and learning processes in entrepreneurship education. *Journal of European Industrial Training*, 32(7), 569-593.
- Franke, N., & Lüthje, C. (2004). Entrepreneurial intentions of business students—a benchmarking study. *International Journal of Innovation and Technology Management*, 1(03), 269-288.
- Faraji Sabokbar, H.A. (2011). Prioritizing entrepreneurship development in rural areas using Promethee technique, case study: Houmeh rural district in the central part of Khodabandeh in Zanjan. *Journal of Human Geography Researches*, 57, 58-68
- Ghavami, H. & Lotfipour, M.R. (2008). Investigating the factors affecting the selection of entrepreneurship compared to wage employment among graduated students, case study: Ferdowsi University Mashhad. *Journal of Knowledge and Development*, 15(24), 163-182
- Heaton, J. (2005). *Developing entrepreneurs: An examination of systematic approaches to entrepreneurial development for rural areas*. Illinois Institute for Rural Affairs, Rural Research Report, Macomb.
- Heydari, M.H. & Mohebi, Z. (2012). Investigating the factors affecting entrepreneurship development in rural areas, National Conference of Entrepreneurship and Knowledge-based Business Management, Mazandaran University, 1-19
- Imani A.M., Salarzahi, H. & Seyedi, F. (2016). Identifying and prioritizing the factors affecting institutionalizing executive agents in organizational entrepreneurship (studying Kerman motors automobile manufacturing company). *Journal of General Management Researches*, 9(31), 123-144.
- Ismail, M., Khalid, S. A., Othman, M., Jusoff, H. K., Rahman, N. A., Kassim, K. M., & Zain, R. S. (2009). Entrepreneurial intention among Malaysian undergraduates. *International Journal of Business and Management*, 4(10), 54.
- Jack, S. L., & Anderson, A. R. (1999). Entrepreneurship education within the enterprise culture: producing reflective practitioners. *International Journal of Entrepreneurial Behavior & Research*, 5(3), 110-125.
- Karimi, S., Bimenz, H., Chizari, M. & Molder, M. (2011). Investigating the effects of cultural and environmental factors on entrepreneurial intend among agriculture students. *Journal of Entrepreneurship Development*, 5(3), 105-124
- Mohammadi Yeganeh, B. (2013). Entrepreneurship and its role in individual and group agricultural credit costs, Zanjan Province. *Journal of Space Economy and Rural Development*, 2(6), 43-57
- Motiei Langroudi S.H., Ghadiri Masoum, M., Dadvarkhani F., Yadollahi Farsi, J. & Torkashvand, Z. (2012). The factors affecting rural people empowerment in entrepreneurship development, (case study: the rural districts Zand and samen in Malayer). *Journal of Human Geography Researches*, 80, 119-138.
- Najafi Kani A.A. Hesam, M. & Ashouri, H. (2015), evaluating the status of entrepreneurship development in rural areas, case study: Astarabad Jonubi rural district in Gorgan. *Journal of Space Economy and Rural Development*, 4(11), 37-56,
- Oser, F., & Volery, T. (2012). Sense of Failure and sense of Success among Entrepreneurs: The Identification and Promotion of Neglected Twin Entrepreneurial Competencies. SKBF.

- Pezeshki, M., Fatahi, M., Ahmadi, M. & Mousapour M.A. (2015). Ranking the factors affecting entrepreneurship development in special trading zone of Amir Abad port, *Journal of Maritime Transportation Industry*, 3(2), 14-23.
- Razghandi, N. & Darani, N. (2009). Identifying individual and environmental factors affecting Tehran superior entrepreneurs' success to present an educational pattern. *Journal of Entrepreneurship Development*, 2(6) 39-55.
- Roknedin-e-Eftekhari, A.R., Pourtaheri, M., Farajzadeh, M. & Heydari Sarban, V. (2009), the role of empowerment in development of agriculture (Case study: Ardabil Province). *Journal of Human Geography Researches*, 69, 87-103
- Shahbazi Menshadi, M. & Salarzahi, H. (2016). Identifying and prioritizing the strategic factors affecting small and medium businesses using hierarchical analysis approach (a study in ceramic tiles industry). *Journal of Entrepreneurship Development*, 9(31), 119-139.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.
- Tousi, R., Jamshidi, A.R. & Taghdisi, A. (2014). Rural entrepreneurship and factors affecting it (case study: rural areas in Minoudasht City). *Journal of Research and Rural Planning*, 3(8), 1-12.
- Turker, D., & Sonmez Selçuk, S. (2009). Which factors affect entrepreneurial intention of university students? *Journal of European Industrial Training*, 33(2), 142-159.
- Yadollahi Farsi, J. & Razavi, S.H. (2012). The role of social capital and human capital in entrepreneurship among the young people in the villages in Karbal rural district. *Journal of Space Economy and Rural Development*, 79, 103-115.