

Structural – interpretative modeling in the design of organic agricultural tourism pattern in rural branding

Saeid Mohammadpour¹, Gholam Hossein Hosseini Nia^{2*}, , Mohammad Javad Taghipurian Gilani³, maryam rahmaty⁴

¹Ph.D. Student of Entrepreneurship, Chalous Azad University, Iran

²Associate Professor, Faculty of Entrepreneurship, University of Tehran , Iran

³Department of Business management, Chalous branch, Islamic Azad University, Chalous, Iran

⁴Department of Business management, Chalous branch, Islamic Azad University, Chalous, Iran

Abstract

This research aims to design an organic agricultural tourism model in rural branding. Method: the research method is exploratory with a qualitative approach in nature. In order to collect data and identify factors, content analysis and review of related texts, as well as interviews with selected experts, were used in the non-random method and snowball technique to achieve theoretical saturation. A structured matrix questionnaire was developed to determine the relationships between developed indicators. The data obtained from the questionnaire was analyzed using structural-interpretive modeling and drawn in three levels in an interactive network, which resulted in the highest level of institutional factors. Also, the degree of influence and the degree of dependence of these factors on each other were investigated in the influence-dependence matrix. The index of institutional factors and competitiveness factors in the influence-dependence matrix strength in the dependent area means the highest degree of dependence and the least influence, and promotion and development factors, intellectual infrastructure, physical-framework infrastructure, and rural branding in the connected area means the greatest influence strength and are of the most interdependence.

Keywords: organic agricultural tourism, rural branding, structural-interpretive modeling

1- Introduction

Today, the tourism industry is one of the most important sources of income in the world and has a special place as the largest service industry in the world (Yoosofi & Sharifi Tehrani, 2016). In most countries, the service sector has the highest added value and the share of employment, which is one of the most important sub-sectors of tourism. Tourism plays an important role in economic development and social welfare of countries. Tourism development is one of the least cost methods of job creation (Darzian Azizi, Feli, Rahimi, Mahmoodi, 2016). Tourism is a dynamic and developing field. This is

* Corresponding Author

probably due to the improvement of the economic situation, the increase in income levels and standards, and the perception of life as having a good time (Skálová & Peruthová, 2016). On the other hand, to respond to the pressures resulting from the costs and difficulties of agricultural surplus production, the reduction of farm incomes and excessive reliance on subsidies, and in order to increase their income, farmers chose a diversification approach to agricultural activities and they provide tourism services to visitors as a source of income (Samani Qutbabadi and others, 2016). Hence, farmers can obtain additional income from tourism in different ways (Nasers, 2009) and use agricultural tourism as the most appropriate strategy to maintain the sustainability of the farm business (Phelan and Sharpley, 2010). Therefore, in order to diversify the activities, the policy makers have introduced tourism as one of the effective approaches in the revitalization of rural areas (Mistora, Rasouli Menesh and Lunik, 2015), but the type of tourism activities should be in accordance with the structure and interests of rural families (Kirimi, 2013). Therefore, one of these suitable approaches for these conditions of rural areas is agricultural tourism (McGee, 2007). Therefore, agricultural tourism, as a part of rural tourism, is recreational, which has a significant impact on production and services in the environment of agricultural fields (Ardestani, 2008; Nechar, 2015; Polucha et al., 2011).

In recent years, several studies have been conducted in the field of agricultural tourism in rural areas of different countries (Demonja et al., 2011, 361; Erdogan Koc, 2008: 1085; Carpio et al., 2008: 254; Veeck et al., 2006: 235; Pop et al., 2008: 598; Kosmaczewska, 2008: 141; G. McGehee et al., 2007: 280; Akpinar et al., 2004: 473; Kizos et al., 2007: 59).

During the last decade, in the field of tourism and sociological literature, a lot of attention has been paid to agricultural tourism as a strategy for adapting farmers to agricultural challenges caused by the reduction of product prices and the expansion of enterprises and companies. Agricultural tourism is not only developed as an economic diversification strategy worldwide, but also pursues a set of economic and non-economic goals of entrepreneurship and promotion of rural development (Valdivia and Barbieri, 2014).

The relationship between agriculture and tourism creates a natural synergy that ultimately leads to economic development, increasing farm income and providing more opportunities for people working in both sectors (Jenkins, 2014). Therefore, agricultural tourism is a value-added product that generates additional income from the land and introduces a farm brand to customers, which provides an opportunity to create a loyal consumer base for all agricultural products. It is also used to diversify income sources and thus reduce market risk (Lucha, 2014). Tiu (2010) showed that diversification from agricultural production to agricultural tourism is a low-risk mechanism for farmers to deal with the increase in the price of inputs and technology in the agricultural industry.

Meanwhile, the negative and unfavorable effects of the use of different chemical fertilizers, poisons, hormones and other chemical products in conventional agriculture on the environment and human health have caused different countries of the world to become more inclined towards organic agriculture. There are various reasons for the growth and expansion of organic farming methods, but the most important is moving towards a sustainable local food system (Kirimi, 2016). Despite the attention paid to organic product supply chains during the last decade, there are many opportunities in this field in the market and the demand for this type of products is increasing worldwide, including in developing countries (Edwardson and Santacoloma, 2013). Innovation, risk-taking, competition and efficiency are very important factors in this new industry. Tourism can help organic agriculture in improving these factors and provide conditions for creating or identifying business opportunities in organic product supply chains and faster growth and promotion of this industry (Hall et al., 2010). The meaning that is considered in organic farming is used for the management of the whole farm and based on that, the farm is considered as a living organism. Industrial chemicals such as herbicides, insecticides, fungi, animal medicines and urea are not used in organic agriculture. In general, no synthetic chemicals are used in organic farms. These materials are not used in soil preparation, plant growth, or the production of inputs that are involved in plant nutrition, storage, processing, or sale (Abdi Parijai and others, 2013). In the current situation, 35 million hectares of agricultural lands in the world are dedicated to the cultivation of certified organic products, but unfortunately, Iran's share of these lands is only 12 thousand hectares or 0.034%, despite its potential capacities and the possibility of being present in the world markets (Keshavarz and Mousavi, 2017).

In this research the purpose of agriculture is the whole range of agriculture, i.e. agriculture, horticulture, animal husbandry, fisheries, flowers, beekeeping, etc., and the purpose of organic

agriculture is a comprehensive management system that measures the quantity and quality of products from production to processing and transfer to the consumer, the health of the soil, plant, animal, human, microorganisms, ecological principles, environment, social relations, respect to creatures and the principles of biological sustainability are considered in it. Currently, the development of tourism in villages in most developed countries has been realized in the form of creating a destination tourism brand. Because the tourism brand provides a context in which competition is formed between different service sectors, while it is on a wider level competes with other tourism destinations in attracting tourists and providing more appropriate services, attracting investment and more employment etc. (Johansson, 2007). Along with the lack of global interactions in the field of tourism, the lack of consensus for tourists to enter the country, not using the unique rural attractions for tourists to enter Iran, and the politicization of tourism, the lack of attention to the issue of brand and branding can be considered the biggest challenge that rural areas of Iran are faced with them. The problem faced by this research is that one of the effective factors in improving the quality of life, attracting tourists, etc. is creating strong brands for villages and other places. However, currently, most villages in Iran lack a fixed and specific brand image and identity. This important matter, in addition to the cost of the lost opportunity due to rural branding, has caused managers and policymakers in various social fields, investment, tourism, etc., often act without a specific plan and strategy and in some cases have independent and even conflicting actions. As a result, instead of presenting a transparent, clear and coherent image; they have presented inconsistent and contradictory images of themselves. If the current situation continues, in addition to the continuation of the gap in the theoretical literature, there is no basis for directing and evaluating the actions of managers to benefit from branding opportunities, and this issue can cause a lot of losses caused by the cost of lost opportunities, to the villages of the country and to the public interest in general. But what is important is the multi-dimensional and complex nature of rural branding, is that many groups of activists and influencers are present in it and diverse, numerous and complex variables are involved in it.

Despite the fact that agricultural tourism exists in some regions, but considering that most of them act as islands and do not play the main role in rural branding, therefore, in this research, we seek to create an agricultural tourism value chain with an emphasis on its unique advantage of being organic villages. That because of this unique advantage, that village becomes a brand. So, how can we create a brand that is known and attractive to the many beneficiaries of a place, in addition to the various areas of a village such as tourism and agriculture, and at the same time gives the village a unique identity?

2- Theoretical bases of research

2-1- Organic agricultural tourism

The term agricultural tourism appeared for the first time at the end of the 20th century in Poland and world research. This term is composed of the combination of two words agriculture and tourism. The nature of tourism activity is also related to the recreational activity away from the place of everyday life according to the human need for recreation, entertainment, insight, and sports activities (Roman, 2015). There are several synonyms for these words, although most of these words have the same meaning. However, the word agro-tourism is less familiar to those who live in England. Agro-tourism is more common than agri-tourism (Movahed et al., 2024; Nozari & Aliahmadi, 2022). This is while the term tourism is a form of recreational activity that a person does away from his place of residence according to his or her perceptive, recreational, and sport needs. The combination of the prefix agri with the word tourism creates a new word meaning tourism activity of a person with the aim of familiarizing with agricultural and recreational activities in an agricultural environment (Sznajderet et al, 2009). The point that is hidden in the concept of agricultural tourism is the fact that a general farm is an entity that provides tourism services (Lupi et al., 2017). Farm management experts point out that every farm has resources that are not economically used and are not used in the agricultural production process. Such resources include empty rooms, extra food, surplus human resources, free space, and ecological and environmental resources such as scenery, clean air, etc. However, the use of these resources creates additional and supplementary income for farmers, which is the most suitable way of using these resources, mainly in the tourism process. Therefore, these resources are the main sources of farm tourism (Yang, 2012). Agricultural tourism, as a part of rural tourism, is a form of recreation that has a significant impact on production and services in the agricultural environment (Ardestani, 2008; Nechar,

2015; Polucha et al., 2011; Movahed et al., 2024). From the economic point of view, agricultural tourism is an investment opportunity for local communities, increasing income, increasing a significant share of rural development and employment, stimulating the development of physical infrastructure, diversifying economic activities, creating added value, and finally, it causes sustainable development (Ziaabadi et al, 2018). Indicators such as village, tourist, farmer and farm or garden are the primary drivers (bases) of agricultural tourism, and variables such as the motivation of tourists and their education with the focus on agricultural tourism, infrastructure, government support, are of the main reasons for tourism development ,with effective results (Fatohi et al., 2019). Agricultural tourism is the creative combination of rural resources such as customs, culture, natural resources, local products and tourism services with agricultural activities, which leads to the synergy of tourism and agriculture (Parvar and Khurshid, 1401). Variables such as interest in serving tourists, individual characteristics and skills, capitalism, are influential in the development of agricultural tourism (Mahmoudi Chenari et al, 2018).

2-2-Organic tourism

Organic tourism is based on agriculture and has a structure, similar to agricultural tourism. Agricultural tourism helps to preserve and sustain nature and the way of life of villagers. Organic agriculture is a cultural evolution that has its roots in environmental culture. In addition, organic agricultural products have a high focus on quality and standard products, healthy and free from chemicals, and this issue cause's high market demand. The relationship between organic agriculture and agricultural tourism services is quite clear. Organic tourism is tourism that brings visitors into direct contact with agricultural activities in organic farms. They play a significant role in the future development of rural areas. Changing the attitude of tourists in staying in nature and living a healthy life instead of staying in luxurious and comfortable hotels has formed a new concept of tourism called organic tourism (Beigi, 2016). Today, farmers and tourism investors realized that organic farming is a type of sustainable tourism and also a good solution for agricultural development. Organic farming is a farming method without the use of any pesticides or chemical fertilizers. Following the growth of organic tourism, the profits of investors in such projects also increased. In organic farms, proper organization is provided for accommodation and food for tourists, and tourists have the opportunity to observe the activities of farmers, participate in this experience and use 100% organic food.

2-3- Rural branding

Evaluating the level of satisfaction of tourists in rural tourism destinations helps rural tourism activists to better understand the views of tourists and focus their efforts on creating positive experiences for them, which helps to build a brand in rural areas. The satisfaction level of tourists in rural areas may be effective in their future decisions to revisit the desired place or recommend it to others (Rajaratnam et al., 2014). Rural tourism is limited in terms of design power, as a result, smaller destinations, especially those that are rural, are lack of resources and ability to advertise and marketing competitively for themselves (Haven-Tang and Sedgley, 2014). Branding plays a very important role in modern tourism marketing and is an important channel to achieve the location of the tourist destination. This can not only provide consumers with targeted information about rural tourism destinations, but also help the development of local industry and product sales (Akso et al., 2020). To overcome these limitations, the concept of relationship-based approach is necessary to provide the resources needed to start the branding process (Cai, 2002). In this situation, one of the ways that the rural destination can overcome these limitations is to build a brand and start marketing activities. New studies have recognized the important role of brand in rural tourism destinations (Campon-Cerro et al., 2017).

3- Research background

Bahmani et al. (1400) in a research titled: " Analysis of factors affecting the development of agricultural tourism and establishing entrepreneurship in rural areas", showed that factors such as providing accommodation for tourists, government incentive schemes, coordination between government organizations, awareness of farmers and creating a platform for private sector investment are the most important effective priorities in the development of agricultural tourism. Zamorano et al. (2020) showed that there are potentially valuable elements that can have a synergistic effect on agricultural tourism attractions, which in the cultural and environmental dimension include health facilities, the local food, landscape and variety of wild plants and animals make tourists enjoy the wealth

of the farm with their five senses. Nematpour and Khodadadi (2020) in a research titled "Evaluation of the socio-economic benefits of agricultural tourism" concluded that the diversity of Iran's farms is an opportunity and advantage for the development of agricultural tourism and a driver of social and economic growth for communities. Also, in this study, it was found that improving educational activities, cultural development, local community participation and creating competition in business are effective in the development of agricultural tourism. Dionysopoulou (2020) in his study entitled "Entrepreneurship in Greek agricultural tourism" stated that the parallel opportunities of agricultural tourism in Greek villages include the spirit of hospitality of the local people, the existence of a hot spring known as a hot water resort, the possibility of skiing in the areas there are mountain, recreational-sports and camping facilities. Bhatta et al. (2019) in their research titled: "Determinant factors of farmers' willingness to start agricultural tourism in Nepal" concluded that the development of agricultural tourism is related to farmers' willingness and their participation in agricultural tourism, also is related to younger farmers with more education and larger size of the land has a higher tendency to develop agricultural tourism, which is necessary for the planners to consider these farmers for the development of agricultural tourism.

4- Research methodology

The purpose of this research is to present the local model of organic agricultural tourism in rural branding. Therefore, the research is exploratory with a qualitative approach. Interpretive Structural Modeling (ISM) has been used to determine the sequence and relationships between the identified elements. In order to collect data and identify factors, from the method of content analysis and review of sources, books and interviews with participants, including university experts and operational experts who have a series of characteristics such as doctorate degrees and scientific productions (books, articles, etc.) and high executive experience in this field were employed. Also, for the selection of experts, a non-random method was used with the snowball technique until theoretical saturation was achieved. On the whole, 10 participants answered the questionnaire according to Table No. 1.

Table 1: Characteristics of research participants

Participant	Age (years)	Education	Post of Participant	Work Experience (years)
1	48	Ph.D.	member of the faculty of the university	12
2	57	Ph.D.	member of the faculty of the university	14
3	49	Ph.D.	member of the faculty of the university	13
4	55	Ph.D.	member of the faculty of the university	10
5	60	master degree	Expert of tourism	20
6	48	master degree	expert of agriculture	18
7	46	master degree	Expert of tourism	14
8	39	Bachelor of science	Expert of tourism	15
9	47	Bachelor of science	expert of agriculture	18
10	56	Associate degree	expert of agriculture	22

4-1- Structural-interpretive modeling

Structural-interpretive modeling (ISM) is very suitable when the number of dimensions and elements studied increases, which makes the relationships between elements more complex. Structural-interpretive modeling is an interactive process in which a set of different and related factors are structured in a comprehensive systematic model. The theory of structural-interpretive modeling helps a lot to establish order in the complex relationships between system elements, this model recognizes the internal relationships between variables and analyzes the impact of one variable on other variables. Also, structural-interpretive modeling can prioritize and determine the level of elements of a system, which helps managers to better implement the designed model. Structural-interpretive modeling is a suitable technique for analyzing the impact of one factor on other factors. This methodology examines the order and direction of the complex relationships between the factors of a system, in other words, it is a tool by which the group can overcome the complexity between the factors (Azer and Bayat, 2017).

5- Research findings

First step: Identifying the factors related to the problem

As mentioned in the research method section, content analysis and interviews with ten selected experts **were used to identify indicators and effective factors.**

The second step: forming the structural self-interaction matrix (SSIM)

At this step, the relationships between the research factors were analyzed double by double and even numbers, and led to structural-interpretive modeling and the use of the relationship between experts' concepts using the following symbols to determine the relationships between the factors. To form the structural self-interaction matrix, the mode method based on the most abundant in each region has been used, which is shown in table number (2).

Table 2: Conceptual relationships in the formation of the

icon	Icon concept
V	If the element of row i leads to the row of j
A	If the element of row j leads to the row of i
X	if the relationship between the elements is bidirectional
O	if there is no relationship between the elements

Institutional factors, promotion and development

The structural self- interaction matrix is composed of research dimensions and factors and their comparison using four modes of concept relations (Azar et al., 2013), which is shown in (Table 3).

Table 3: The structural self- interaction matrix

	Institutional factors	promotion and development factors	intellectual infrastructure	Physical infrastructure	competitiveness factors	rural branding
Institutional factors		A	A	A	A	X
promotion and development factors			X	X	V	V
intellectual infrastructure				V	V	X
physical infrastructure					0	V
competitiveness factors						A
rural branding						

The third step: forming the Initial Reachability Matrix (IRM)

This matrix is obtained by transforming the structural self-interaction matrix into a two-valued matrix (zero and one). The primary access matrix has been presented in (Table 4).

Table 4: Structural self- interaction matrix

	Institutional factors	promotion and development factors	intellectual infrastructure	Physical infrastructure	competitiveness factors	rural branding
Institutional factors	1	0	0	0	0	1
promotion and development factors	1	1	1	0	1	1
intellectual infrastructure	1	1	1	1	1	1
physical infrastructure	1	1	0	1	0	1
competitiveness factors	1	0	0	0	1	0
rural branding	1	0	1	0	0	1

Fourth step: forming the final reachability matrix (FRM)

This matrix is formed by applying the multiplicative relationships among the factors. In this way, the next stage of the implementation of the ISM methodology can be completed. In this matrix, secondary relationships between factors are controlled. The secondary relationship is that if dimension I leads to dimension J and dimension J to dimension K, then dimension I will lead to dimension K, and if this state is not established in the reachability matrix, the matrix should be modified and the missing relationships should be replaced. In this way, some zero elements will become one, which is shown as (*1). The final matrix is obtained by identifying the secondary relations and modifying the reachability matrix. In fact, with this work, compatibility is established within the matrix.

Table 5: Formation of the final reachability matrix

	Institutional factors	promotion and development factors	intellectual infrastructure	Physical infrastructure	competitiveness factors	rural branding
Institutional factors	1	0	*1	0	0	1
promotion and development factors	1	1	1	*1	1	1
intellectual infrastructure	1	1	1	1	1	1
physical infrastructure	1	1	*1	1	*1	1
competitiveness factors	1	0	0	0	1	*1
rural branding	1	*1	1	*1	*1	1

Fifth step: determination of relationships and leveling of factors

In order to determine the relationships and leveling of the factors, the input set, output set and joint set should be determined for each variable.

The output set of an agent includes the agent itself and the agents that affect them, which can be identified by the ones in the corresponding line. The input set of an agent includes the agent itself and the agents that are affected by them, which can be identified by the ones in the corresponding column.

After determining the input and output sets, their share is determined for each factor. Variables whose exit and common sets are completely similar are placed at the highest level of the structural-interpretive model hierarchy. In order to find the components of the next level of the system, the components of the highest level are removed in the mathematical calculations of the related table, and the operations related to the determination of the components of the next level are performed in the same way as the determination of the components of the highest level. This operation is repeated until the components of all levels of the system are identified (Azer et al., 2012).

Table 6: Leveling of effective factors

factors	input	output	sharing	level
Institutional factors (C1)	C1, C2, C3, C4, C5, C6	C1, C3, C6	C1, C3, C6	level 1
promotion and development factors (C2)	C2, C3, C4, C6	C1, C2, C3, C4, C5, C6	C2, C3, C4, C6	level 3
intellectual infrastructure (C3)	C1, C2, C3, C4, C6	C1, C2, C3, C4, C5, C6	C1, C2, C3, C4, C6	level 3
physical infrastructure (C4)	C2, C3, C4, C6	C1, C2, C3, C4, C5, C6	C2, C3, C4, C6	level 3
competitiveness factors (C5)	C2, C3, C4, C5, C6	C1, C5, C6	C5, C6	level 2
rural branding (C6)	C1, C2, C3, C4, C5, C6	C1, C2, C3, C4, C5, C6	C1, C2, C3, C4, C5, C6	level 3

The sixth step: drawing the structural-interpretive model

At this step, according to the levels of the factors and the final reachability matrix and through the elimination of secondary relationships, the final model is obtained, which is called a structural model or diagram in structural-interpretive modeling. (Azer et al., 2018). The research model is shown in (Figure 1).

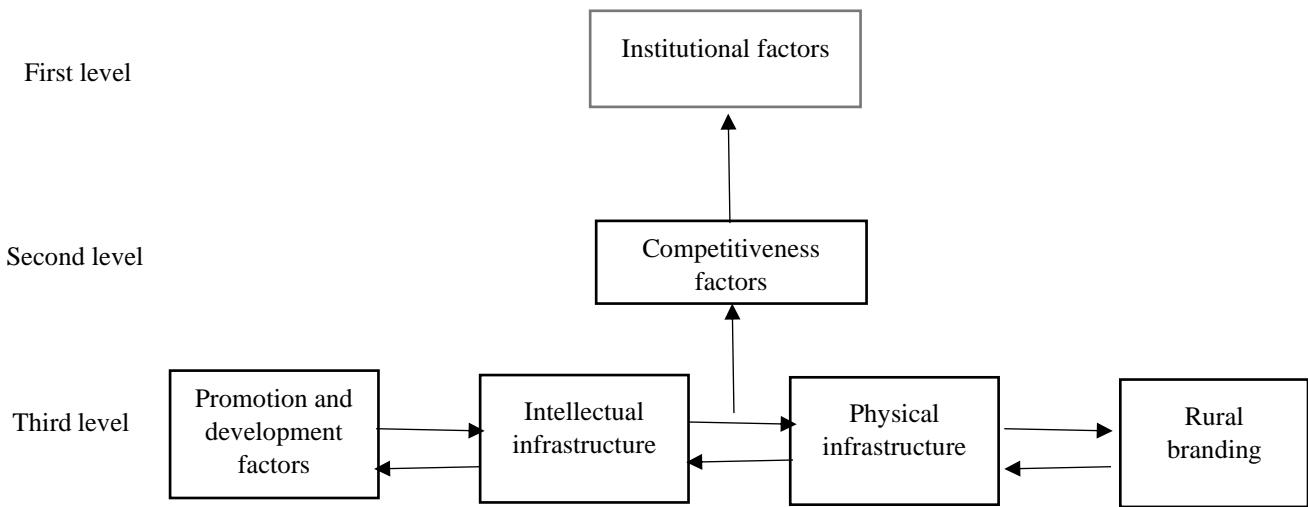


Figure 1: Leveling of factors affecting organic agriculture tourism in rural branding

Seventh step: Analysis of influential power and degree of dependence (Mic-Mac) At this step, factors are classified into four groups. In order to calculate the influence of factors, it is enough to add the number of ones in each row of the final access matrix. In order to calculate the strength of dependencies, we must add the number of ones in each column related to each factor together. The first group includes autonomous factors (area 1) that have weak influence and dependence. These variables are somewhat separate from other variables and have little correlation. The second group includes the dependent variables (area 2) that have weak influence but high dependence and do not reduce the achievement of other elements. The third group is connected factors (area 3). These variables have high power of influence and dependence. They have a responsive effect and affect other system variables. In fact, any action on these factors leads to the change of other factors. The fourth group is independent factors (area 4). These factors have high influence and low dependence. Factors that have a high influence are called key factors.

6				C3,C4	C5	C6
5						
4		independent			connected	
3		autonomous			C5	C1
2					dependent	
1						
	1	2	3	4	5	6

Diagram 1. Clustering of factors by the Mic Mac analysis method

Conclusion

A review of the research shows that in every rural area where agricultural tourism has been developed, it has caused economic prosperity and has been effective in solving problems such as unemployment and migration from the village. Among the rural areas that actually have the potential to produce agricultural products in a specialized and high volume, they have the ability to develop agricultural tourism. Therefore, the growth and development of organic agriculture tourism requires the coordination of institutions and organizations. Public and private sector participation to create infrastructure and facilities, can also be useful for organizing and building capacity in agricultural communities. This issue also improves the sustainability of agricultural tourism with the help of local people who become aware of resulted opportunities and benefit from it. In order to achieve long-term success and obtain economic benefits from organic agricultural tourism, educational programs, and

special training should be designed to enable small family businesses to provide services and manage agricultural tourism businesses, and in the development processes of organic agricultural tourism, entrepreneurs, and employees can have effective activity. In this research, the field of increasing regional income is provided by forming value chains centered on tourism and agriculture and creating added value in the products of both sectors. For example, the villages in the mountainous regions of the west of Mazandaran province of Iran, in addition to having unique landscapes and historical identity, have great potential in the production of handicrafts, the production of medicine plants, the establishment of residential and ecotourism centers, and the establishment of recreational and nature tourism centers, but the lack of The existence of suitable infrastructure to provide the necessary training to the villagers in the field of innovation and creativity in producing of production, marketing, and branding and on the other hand the lack of financial resources has caused these potentials not to flourish, and gradually the field of selling agricultural land and the migration of villagers are provided. Therefore, by emphasizing agricultural tourism based on native and organic life as a unique and distinctive feature, villages can strengthen their brand and create more attraction for tourists. In general, this type of tourism can contribute to the sustainable development and local branding of villages and help and contribute to these areas' economic, social, and cultural development.

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