

## ARTICLE

# STUDYING THE EFFECTS OF AGRICULTURE ON SUSTAINABLE DEVELOPMENT IN SOME VILLAGES OF HAMIDIEH

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## ABSTRACT

The aim of this study was to investigate the effects of agriculture on sustainable rural development indices in villages of Karkheh rural district, Hamidieh. The study method was analytical- descriptive using documents and field studies, and the population included villages of Chamim, Oudeh, Janadleh, and Albuid-e YekNabi. The sample size was estimated as 200 people based on Cochran's formula and was set according to Likert scale. SPSS software is used to analyze research data. The results showed that agriculture has a great effect on economic, social, and physical development of the villages under study. Results showed that agriculture has great effects on economic, social, and physical development of villages investigated. According to the results of analyzing the questionnaire findings with correlation coefficient test to analyze the effects of agriculture on indices of entrepreneurship and rural sustainable development in the villages studied, the total mean of quality of entrepreneurship in villages of Janadleh, Chamim, Oudeh, and Albuid-e YekNabi is 3.90, 3.83, 3.80, and 3.40, respectively. Finally, within the theoretical framework of the research, a significant relationship was observed between planting vegetable and entrepreneurship of villagers and vegetable cultivation and rural indices of sustainable development.

## INTRODUCTION

Agriculture is usually the most important part in the economy of developing countries. Thus, economic development in these countries is closely related to the development of their agriculture. Agricultural growth can have a significant impact on poverty reduction, rural employment, increasing GDP, meeting the consumption needs of population, and gaining foreign exchange support for the country.

Moreover, with the expansion of human civilization, agricultural activities, given their structural nature, have been introduced as primary function in rural areas, and among other rural functions, such as residential, socio-cultural, political and economic functions, it is the most important economic function, particularly for countries lacking mineral resources [1]. Moreover, the immediate connection between the two phenomena of agriculture and rural development has caused agriculture and rural development concepts to be used interchangeably sometimes [2].

In the economic structure of rural areas in different countries, agriculture is considered as the basis of livelihoods and in most development programs, it is the single and most important pillar of the rural economy [3]. In fact, village and rural life are combined with agricultural activities, and agriculture has a key role in rural development activities. The agricultural sector, especially in developing countries, should serve as a tool for the sustainable rural development. Rural development, as a process of social, economic, and cultural change in the rural environment includes improving productivity, increasing rural employment and income, providing minimum acceptable levels of nutrition, housing, education, and health [4].

In Iran, a major part of the population is living in rural areas and their jobs are mostly agricultural jobs or activities related to it. Therefore, addressing issues such as food security, public participation in decision-making, as well as protection of biological resources, regardless of the agricultural sector is almost impossible [5]. On the other hand, one of the main pillars of sustainable rural development is attention and research in agricultural farming systems and as agriculture is considered as the most important part of the rural community activities, studying its dimensions is of the basic points on rural recognition and development. In other words, the agricultural sector of every rural community is based on operating systems forming that community and these systems could have a decisive role in sustainable rural development. Since development process itself is a function of domestic and foreign ecological, economic, and social factors development-process, its changes will affect agricultural structure [6].

In a study that was conducted by [7] for strategic planning to expand employment in rural and urban areas, it was shown that among 57 surveyed villages about 16 percent are at rich level, 40 percent average, and 44 percent are in underserved and deprived areas.

Moreover, the result of the study to develop employment in deprived and disadvantaged areas of Javanroud showed that aggressive strategy (SO), where the main focus is on internal strengths and external opportunities, is the most appropriate strategy to promote employment in villages at the two levels mentioned [7].

In a paper, [8] studied "The Role of Agricultural Entrepreneurship in Rural Development." Results showed that the diversification of the rural economy is not realized just by induction from the outside unless the entrepreneurs of rural areas identify potential opportunities and resources themselves, and by the efficient use of them bring about diversity of employment and the economy for rural areas.

### KEY WORDS

Rural economy,  
agriculture, sustainable  
development,  
entrepreneurship,  
vegetable cultivation,  
Karkheh rural district

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The results of the study entitled "An analysis of the effects of agricultural processing industries in rural development, case study: Seyedan, Marvdasht" showed that agricultural processing units in five economic, social, agricultural, physical, and environmental dimensions, except in the economic dimension from the rural people's perspective, and in other aspects and from the viewpoint of industry owners in all aspects have been more than average [9].

[10] studied "The role of agriculture in rural development in rural district Chaghanarges, Kermanshah." Their findings showed that the efficiency of agricultural production in rural district Chaghanarges arises from the following factors: a) traditional methods of agriculture, b) small lands, and c) low level of education and skills of beneficiaries. Moreover, there was a significant relationship between the development of agriculture and rural development in rural district Chaghanarges, so that agricultural development can be the basis for rural development. Examining the natural ability of the rural district also showed that regional agriculture has great capabilities for development.

[11] examined the role of agricultural products with an emphasis on saffron in rural- development in Kashmar, BalaVelayat District. The results showed that BalaVelayat District has a key position in terms of climate, water, and soil suitable for planting saffron at large scale.

[12] conducted a study entitled "The Role of Agriculture in Rural Development." The results showed that the agricultural sector is one of the most powerful sectors that supplies about a third of employment, more than four-fifths of the country's food needs, half of non-oil exports, the need of 4 million households, 0.9 of the industry need to crops, and one-fifth of GDP of the country.

[13] examined the project of conversion and complementary industries of agriculture and technology development of Bangladesh and the results led to offering solutions for conversion industrial development.

[10] states that in the economic boom of the West, especially Britain and France, agriculture has played a crucial role in providing food and labor power necessary for the fledgling parts of the industry in these countries.

[14] believe that protection payments to organic planting farmers play a key role in the process of accepting, continuity, and development of organic farming.

- In his research, [15] realizes the role of agriculture in Ghana's rural development on national security and regional stability.

- While seeing the development of agriculture with health and education of people, [10] states that poverty exists in rural area where the life of its inhabitants depends mainly on agriculture.

[16] stated that with the development of entrepreneurship in rural areas, the context for rural people's benefiting from access to goods and services increases and finally, economic growth and consequently rural development are realized.

- While seeing the development of agriculture with health and education of people, [10] states that poverty exists in rural area where the life of its inhabitants depends mainly on agriculture.

- In his book "Sustainable Development of Agriculture and Rural Development," [17] focuses on the relationship between these two issues and discusses the role of sustainable agriculture in rural development.

[18] studied the effect of industrialization on the economy and rural life in India. The results showed that industrial decentralization increases awareness, expands training, creates more investment in the agricultural sector, and increases in the income of low-income households.

According to the description and evaluation of the resources mentioned above, attention to the importance of agricultural effects on economic, social, and physical development of villages in Iran, the importance of this research in Hamidieh, and in form of case study in Karkheh, which has the most cultivated agricultural land, we were obliged to study the effects of agriculture on sustainable development in some villages of Hamidieh.

Hamidieh is in the southwestern Iran and its capital is HamidiehCity, which is extended from Karkheh River to Khuzestan plain. Its span is nearly 4762 square kilometers. Hamidieh is one of the major poles of Agriculture in Khuzestan that with fertile soil and sufficient water has provided suitable conditions for the cultivation of vegetables, legumes, and melons. Karkheh rural district, as the most important rural district of this city, is the largest area under vegetable crops cultivation.

## MATERIALS AND METHODS

This study is applied research, in terms of research methodology, it is descriptive-analytical, and data collection tools are library and field. In library method, data is collected through books and documents of

organizations, articles, archives of various scientific organizations and sites, and the second method, was field studies and interviews, which will be conducted through the preparation of the questionnaire and finally the categorization and the analysis of field studies.

The population included villages of Chamim, Oudeh, Janadleh (SheykhTomeh), and Albuid-e YekNabi. According to the statistics of Rural Health Centers and the Statistical Center of Iran, the number of households in 2011 in these villages is 57, 240, 218 and 53 households with 568 households. Cochran's formula was used to determine the sample size. Cochran's formula is one of the most widely used methods to calculate the sample size where (n) is sample size, (N) is the population size, (z) is value of the value of the standard unit that in 95% confidence level is 1.96, (p) is the proportion of the population with a certain attribute, (q) is the proportion of the population lacking certain traits (if the amount of p and q are not available, it can be considered as 0.5, and (d) is the allowable error usually equal to 0.01 or 0.05.

$$n = \frac{(z^2 pq/d^2)}{(1 + 1/N((z^2 pq/d^2) - 1))}$$

Therefore, using Cochran's formula for determining the sample, the sample size was obtained as 197 people that increased to 200 to increase accuracy. The questionnaires were distributed among the population and completed with the help of researchers.

Data analysis and hypothesis testing were done using statistical analysis software SPSS20 in descriptive method (frequency, mean, standard deviation) and inferential statistical method such as Chi-square test, Pearson and Spearman correlation analysis.

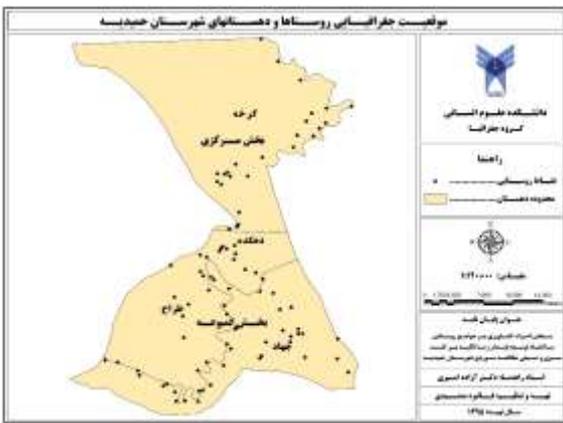


Fig. 1: Location map of the city of villages and rural district of Hamidieh.

## RESULTS

### Descriptive findings

All 200 questionnaires distributed were collected. Based on the results, 98.5 percent of respondents were men, and 1.5 percent of respondents were women. In terms of age, 7.5% of respondents were in the age group 16-24, 52.5% in group 25-33, 27% in the group 34-42 years, 8.5% in 43-51 years, and 4.5% in 52-60. In terms of level of education, 55.5% of the respondents had primary education, 32.5% guidance school, 10% high school, and 2% had higher education. In terms of location, 49% of respondents live in Jandaleh, 15 percent in Albuid-e Nabi, 25.5% in Oudeh, and 21 percent in Chamim. The products produced were vegetable in Jandaleh and Chamim, respectively as 4000, 3500 tons, and in Oudeh and Albuid-e Nabi, it was 3850 tons.

Based on the results of descriptive statistics, mean and standard deviation for entrepreneurial index in the villages of Jandaleh, Chamim, Oudeh, and Albuid-e Nabi are, respectively,  $3.90 \pm 0.18$ ,  $3.83 \pm 0.077$ ,  $3.80 \pm 0.07700$  and  $3.40 \pm 0.00$ . Regarding sustainable development index, the mean and standard deviation are, respectively,  $3.78 \pm 0.00$ ,  $3.66 \pm 0.009$ ,  $3.64 \pm 0.01$ , and  $3.57 \pm 0.01$ .

### Examining the effects of entrepreneurship indicators in the villages studied

To evaluate the effects of entrepreneurship indicators in the villages studied the items "To what extent has agriculture been effective in creating employment in rural areas? To what extent has agriculture been effective in the diversification of employment in rural areas? Creating meaningful units will promote agricultural development in rural district of Karkheh. Holding technical courses for farmers will increase the knowledge of farmers and promote agriculture. To what extent has agriculture been effective in rural entrepreneurship?" Moreover, "open questions of the questionnaire" are used that are assessed with the

statements of [Tables 1 and 2]. The relative distribution of the responses to the items is given in the tables.

According to [Table 1], the mean of total effect of indicators of entrepreneurship is 4.20 that in terms of rating are in good condition.

Among the research items in entrepreneurship indicators, the lowest average belongs to items "To what extent has agriculture been effective in diversification of employment in rural areas?" with an average of 3.24 and SD of 0.542. Moreover, the highest belongs to the item "To what extent has agriculture been effective in creation of employment in rural areas?" with an average of 4.92 and SD of 0.264. According to [Table 2], which is related to open questions of the questionnaire, all subjects in the villages under study answered yes to the items "Are young people involved in agricultural farming? Are women and girls engaged in agricultural activities? Are the children working in agriculture?" and answered no to the items "Do you pack and sell vegetables? Do you dry and sell vegetables? Is there a vegetable firm in the area? Do you directly sell your greens?"

**Table 1:** The value of effect of indices of entrepreneurship in the villages studied

Row	Item	The amount of effect					SD	Mean
		Very weak	Weak	Average	Good	Very good		
1	To what extent has agriculture been effective in creating employment in rural areas?	0	0	0	7.5	92.5	0.264	4.92
2	To what extent has agriculture been effective in diversification in rural areas?	0	0	81.5	13.0	5.5	0.542	3.24
27	Creating purposeful units of agriculture will develop agriculture in villages in Karkheh.	0	0	11.5	88.5	0	0.319	3.88
29	Implementation of vocational and technical courses for farmers will increase the knowledge of farmers and agricultural promotion.	0	1.0	0.5	10.5	88.0	0.441	4.85
42	To what extent has agriculture been effective in rural entrepreneurship?	0	0	0	88.5	11.5	0.319	4.11
Total		0	0.2	18.7	41.6	39.5	0.178	4.20

**Table 2:** The value of effect of indices of entrepreneurship in the villages studied

Row	Items	The value of effect							
		Jandaleh		Albuid		Chamim		Oudeh	
		Yes	No	Yes	No	Yes	No	Yes	No
43	Are young people working in agriculture?	100.0	0	100.0	0	100.0	0	100.0	0
44	Are women and girls engaged in agricultural activities?	100.0	0	100.0	0	100.0	0	100.0	0
45	Are children engaged in agricultural activities?	100.0	0	100.0	0	100.0	0	100.0	0
46	Do you pack and sell your vegetables?	0	100.0	0	100.0	0	100.0	0	100.0
47	Do not attempt to dry out and sell your vegetables?	0	100.0	0	100.0	0	100.0	0	100.0
48	Is there a vegetable factory?	0	100.0	0	100.0	0	100.0	0	100.0
49	Do you attempt to sell your vegetables directly?	0	100.0	0	100.0	0	100.0	0	100.0

### 1. Studying the effects of indicators of sustainable development in the villages

To evaluate the effects of rural sustainable development indicators in the studied villages all the items of the questionnaire were used that were tested with the items in [Tables 3 and 4]. According to the data in Table 3, the mean of impact of sustainable rural development is 3.67 that has a good status in terms of ranking. Among the research items in sustainable rural development indices, the lowest average belongs to the index "avoiding fragmentation and land use change that is suitable for agriculture have led to the development of rural villages in Karkheh" with an average of 1.25 and SD of 0.687. The highest belongs to "To what extent has agriculture been effective in improving rural life?" with an average of 4.98 and SD of 0.172.

According to [Table 4], which corresponds to "open questions of the questionnaire," all subjects in the villages under study answered yes to the items "Are young people involved in agricultural farming? Are women and girls engaged in agricultural activities? Are the children working in agriculture?" and answered no to the items "Do you pack and sell vegetables? Do dry and sell vegetables? Is there a vegetable firm in the area? Do you directly sell your greens?"

**Table 3:** The impact of sustainable development indicators in the villages studied

Row	Items	The amount of effect					SD	Mean
		Very weak	Weak	Average	Good	Very good		
1	To what extent has agriculture been effective in creating employment in rural areas?	0	0	0	7.5	92.5	0.264	4.92
2	To what extent has agriculture been effective in the diversification of employment in rural areas?	0	0	81.5	13.0	5.5	0.542	3.24
3	To what extent has selling agriculture been effective in rural incomes?	0	1.0	11.0	1.0	87.0	0.689	4.74
4	To what extent have agriculture and related industries been effective in increasing the incomes of rural people?	0	1.5	9.5	12.5	76.5	0.716	4.64
5	To what extent have agricultural activities of villagers been effective in having access to low-interest agricultural loans?	0	79.0	19.5	1.0	0.5	0.477	2.23
6	To what extent has production of agriculture products been effective in income of rural people?	0	4.0	1.5	94.5	0	0.408	3.90
7	To what extent can export of agricultural products bring exchange into the country?	0	85.5	2.5	12.0	0	0.661	2.26
8	To what extent has the rise in prices of agricultural activities been effective in rural areas land and property price increase?	0	6.0	2.0	92.0	0	0.491	3.86
9	To what extent has the sale of agricultural lands been effective in increasing rural household income?	0	95.5	0.5	0	0	0.070	2.00
10	To what extent have agricultural activities in the region been effective in attracting investment?	0	0	89.0	11.0	0	0.313	3.11
11	To what extent can mechanization and the use of agricultural machinery help increase production?	0	0	0.5	10.5	89.0	0.335	4.88
12	To what extent is the use of agricultural machinery and mechanization of agriculture effective in increasing farmers' incomes?	0	10.5	0	0.5	89.0	0.992	4.68
13	Has diversification been effective in agricultural activities and the development of rural villages of Karkheh?	0	12.0	87.5	0	0.5	0.358	2.89
14	Diverse planting will improve the economic situation of rural farmers.	1.0	1.0	11.0	87.0	0	0.464	3.84
15	Avoiding fragmentation and suitable agricultural land-use change leads to the development of rural villages Karkheh.	87.5	0.5	11.0	1.0	0	0.687	1.25
16	Creating production cooperatives and agricultural processing industries could create jobs and increase rural incomes.	0	10.5	0.5	1.0	88.0	0.931	4.66
17	To what extent have bank loans of farmers been effective in the provision of agricultural machinery and equipment?	0	0	11.0	0.5	88.5	0.629	4.77
18	To what extent has agriculture been effective in providing education and health services?	0	2.0	97/5	0.5	0	0.157	2.98
19	To what extent has agriculture been effective in increasing social communication of people from village with people from the cities and surrounding areas?	0	0.5	0.5	99.0	0	0.157	3.98
20	To what extent has agriculture been effective in the villagers' access to telephone and Internet?	0	0	0.5	99.5	0	0.070	3.99
21	To what extent has agriculture been effective in increasing food quality of villagers?	0	0	0.5	99.5	0	0.070	3.99
22	To what extent has agriculture been effective in reducing migration from rural to urban areas?	0	0	0.5	99.0	0.5	0.100	4.00

23	In your idea, has development of the agricultural sector increased the rural participation in regional development?	0	0	1.0	1.0	98.0	0.222	4.98
24	To what extent has agriculture been effective in improving the lives of the villagers?	0	0	0.5	1.0	98.5	0.172	4.98
25	To what extent has agriculture been effective in the supply of essential commodities and rural welfare?	0	0	0.5	1.5	98.0	0.185	4.98
26	To what extent has agriculture been effective in the purchase of vehicles and rural welfare?	0	0	88.5	11.5	0	0.319	3.11
27	Creating targeted units will develop agriculture in the villages of rural district Karkheh.	0	0	11.5	88.5	0	0.319	3.88
28	Supporting educational institutions of the private sector will develop villages of Karkheh.	0	0.5	88.0	10.5	1.0	0.369	3.12
29	Implementation of vocational and technical courses for farmers will increase the knowledge of farmers and agricultural promotion.	0	1.0	0.5	10.5	88.0	0.441	4.85
30	Holding technical classes for the farmers will increase the knowledge of farmers and promotion of agriculture	0	0	2.5	11.5	86.0	0.434	4.83
31	In your idea, have agricultural activities affected increasing the level of education of rural households?	0	13.5	85.0	0.5	1.0	0.410	2.89
32	To what extent have agricultural activities been legal and prospective?	1.0	84.0	11.0	3.5	0.5	0.521	2.18
33	To what extent have mechanization of agriculture machinery been effective in improving the lives of farmers?	0	0	1.5	87.0	11.5	0.347	4.1
34	To what extent have revenues from sale of agricultural products been effective in improving the lives of the villagers?	0	0	3.5	96.0	0.5	0.198	3.97
35	To what extent have agricultural activities been effective in improving the physical status of villages?	0	0	89.0	10.5	0.5	0.335	3.11
36	To what extent have agricultural activities been effective in the provision of infrastructure services?	0	0.5	87.5	11.5	0.5	0.335	3.12
37	To what extent have agricultural activities been effective in improving rural buildings?	0	0.5	86.0	13.0	0.5	0.370	3.13
38	To what extent have agricultural development and increase of rural incomes been effective in the materials used in homes?	0	2.0	85.5	12.5	0.5	0.385	3.11
39	To what extent have agricultural activities been effective in the quality of materials used in buildings?	0	5.5	82.5	11.5	0.5	0.431	3.7
40	To what extent have agricultural activities been effective in road building?	0	6.0	93.5	0	0.5	0.279	3.95
41	To what extent has farming been effective in improving the condition of rural buildings?	0	6.5	82.5	11.0	0.5	0.432	3.06
42	To what extent has farming been effective in villagers' entrepreneurship?	0	0	0	88.5	11.5	0.319	4.11
Total		2.1	10.2	31.9	29.2	26.5	0.059	3.67

**Table 4:** The value of impact of rural sustainable-development indicators in the studied villages

Row	Items	The value of effect							
		Jandaleh		Albuid		Chamim		Oudeh	
		Yes	No	Yes	No	Yes	No	Yes	No
4	Are young people working in agriculture?	100.0	0	100.0	0	100.0	0	100.0	0
4	Are women and girls engaged in agricultural activities?	100.0	0	100.0	0	100.0	0	100.0	0
4	Are children engaged in agricultural activities?	100.0	0	100.0	0	100.0	0	100.0	0
4	Do you pack and sell your vegetables?	0	100.0	0	100.0	0	100.0	0	100.0
4	Do not attempt to dry out and sell your vegetables?	0	100.0	0	100.0	0	100.0	0	100.0
4	Is there a vegetable factory?	0	100.0	0	100.0	0	100.0	0	100.0
4	Do you attempt to sell your vegetables directly?	0	100.0	0	100.0	0	100.0	0	100.0

## CONCLUSION

Twelve indicators in entrepreneurship and 42 indicators in rural sustainable development were examined to determine the effects of agriculture on indices of entrepreneurship and rural sustainable development in the villages studied. According to the results of analyzing the questionnaire findings with correlation coefficient test to analyze the effects of agriculture on indices of entrepreneurship and rural sustainable development in the villages studied, the total mean of quality of entrepreneurship in villages is Janadleh, 3.90; Chamim, 3.83; Oudeh 3.80; and Albuid 3.40.

Moreover, total average of indices of sustainable rural development in the village Janadleh is 4.57, Chamimis 3.66, Oudehis 3.64, and Albuidis 3.57. Therefore, within the theoretical approach of the study, there is a significant relationship between vegetable cultivation and entrepreneurship of villagers. Moreover, there is a significant relationship between the cultivation of vegetable with indicators of rural sustainable development.

The results of this research were consistent with the findings of [2], [7],[8], [16], [10], [11], [12], [18], [19], [20].

### CONFLICT OF INTEREST

Authors declare no conflict of interest.

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### FINANCIAL DISCLOSURE

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