

Original Research Article

Assess the level of development of Guilan agricultural using numerical taxonomy (Case study: the rural areas the Central City District of Rasht)

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ABSTRACT

In the process of planning for rural development, identify structural features for levels of development and awareness of the environmental potential of each area is important. In the process of planning for rural development, identify structural features for levels of development and awareness of the environmental potential of each area is important. the level of development of the agricultural sector in different parts of region is not the same, and in fact the absence of homogeneity and heterogeneity is seen. This makes it inevitable necessity of the study the process of development in the parts of a region. Identify and explore the possibilities and abilities and then determining the levels of development of different regions is the first step in the planning process and the development of such areas. The overall objective of this study was to determine the level of development of agriculture in rural areas of Guilan using numerical taxonomy. To achieve this goal, six main indicators of agricultural to rank the villages in the province have been used. The data for the study of agricultural statistics and the letter was obtained by years 2007-2012. The results of this study showed that Falakdeh, Tosarvandan, Pirkalachay and Bijarbaneh have higher degree of development than other villages and villages such as Gurab Varzal, Kaftrod, and siaestalkh have lower-ranking. Some villages were excluded due to the heterogeneity of the other villages. Finally, strategies for agricultural development for different villages were presented.

KEY WORDS

Agricultural development | Numerical taxonomy |

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Introduction

Development is one of the concepts that are developed after World War II in the discussion of science, economics, social and political and governance as well as it has been a special place in international affairs. Development in terms of lexical have similar meanings of social change, social development, social development, modernization and progress and finally, the development is a comprehensive process in order to increase the socio-human power to respond to human and social needs; Meanwhile, the need continues to be refined in the light of cultural values in social and stable outlook of world (Taheri, 1997).

In Iran, more than three decades, policymakers, experts and planners use various ways of planning, such as regional, spatial and land to use this method, and the insistence on the economic, social and environmental power and potential in various areas to establish sustainable development in the field of national regional. Among the sectors that have always been considered in developing countries and regions, is agriculture that in Iran, due to the supply country's food needs is very important.

In fact development is the first and most important goal of all governments. Development is a process in which communities from condition of retardation and underdevelopment through more or less identical developmental stages, and tolerance and the qualitative and quantitative changes to become a developed nation (Ghadiri and Habibi, 2004).

In the process of development, man managed to drain the swamps, overcoming hot deserts and dense forests of the tropics and the bizarre polar plains, and in agricultural development in rural areas has achieved stunning success. Measurement the performance of areas is necessary because today areas faced with a shortage of resources. So, this resource should be allocated in such a way that it can be more

products or services offered through existing resources. In this study, rural conditions, in terms of agricultural development, are assessed with the method of numerical taxonomy in the province of Guilan.

By examining issues such as power and capabilities of agricultural development of province; Ranking rural areas in terms of development and whether in terms of deprivation and inequality in agricultural development in rural areas of Guilan province (in the villages) there is a significant difference or not?

The main focus of the study is how the level of development of Guilan Agricultural using numerical taxonomy is evaluated?

Growth and development as the issue of socio-economic, first by economists and sociologists and researchers in some sciences was considered as the base of planning (Hadder, 2000). In principle development has been meant to improve the living conditions. Because of economics, is a knowledge about effective and efficient use of resources to meet the basic material needs of human life; development, is permanent attraction for economics and subsequent processes (Peet, 1999).

The challenges of today's world, food security and supply this early needs of humans (Essiat, 2001). Developing countries are faced with a serious challenge for the imbalance between population growth and agricultural production and the pressure of population growth and food supply constraints, has led to international attention to the research of environmental, food and nutrition (Burke et al, 2005). Due to this, in our country seems to be vital for agricultural development. In any case, the development of the agricultural sector is a prerequisite for economic development and until they don't remove obstacles to the development of this sector, other sectors will also not achieve growth and development (Zangi Abadi and Soltani, 2088).

In Iran, more than three decades, policymakers, experts and planners have used various ways, such as regional planning, environment and land use, this method, and the insistence on the economic, social and environmental power and potential in various areas, to establish sustainable development in the field of national-regional. Among the sectors in developing countries and regions are the agricultural sector in Iran that due to the country's food needs is very important. However, in recent years, the problems of rural areas, causing irregular migration, widespread poverty, inequality growing, rising unemployment, high agricultural waste and reduced rural incomes in rural areas (Rahnama, 2006).

In the north - Guilan and Mazandaran - thanks to the Alborz mountain range, good soil, lush vegetation and abundant water resources, fertile coastal plains, the climate has been created in Caspian which is a very efficient area of agriculture and the environment in Iran. In the West, temperate zone of the Zagros Mountains and its foothills, the different ways of life created by other regions of Iran. This area is very rich in terms of soil and water resources that over the centuries is the establishment of Iran's population. Moreover, in the East and South of the country, arid and semi-arid area in the center of the country, the area has created vast desert climate that the characteristics are low vegetation, warm climate and arid, low rainfall, a little current water, low population and scattered and far apart settlements. Such climate features include most of the country's territory.

In general, the approach used in this field can be divided into four categories: economic approach, social approach, physical-space approach and comprehensive approach. Fits any one of these approaches, several strategies have been used. In economic approach, "Agricultural Development Strategy (Green Revolution)", "land reform strategy" and "Rural industrialization strategy" is detectable. The strategy of "basic needs", "participation in rural development" and

"local communities' development" is related to social approach and spatial approach, "strategic planning of rural centers, village Counter-City Development Strategy", "urban functional role in rural development strategy", is detectable. "A comprehensive strategy for rural development and rural integration" and "sustainable development strategy", including strategies that are holistic approach than to rural development programming (Rezvani, 2002).

In the process of planning and rural development of the current situation and the level of development, investigating differences in local and regional development, factors affecting the development and ultimately attempting to solve problems and meet the needs in order to modify existing inequality is of particular importance (Parsons, 1949). Rural development is the process of increasing people's choice, extending public participation, enable people to make decisions in shaping their environment, increasing prosperity, development and potential opportunities, enable all people, especially women, small farmers and ... to organize and enable their space for teamwork (Papeli Yazdi and Ebrahimi, 2003).

Kohansal and Rafee Darani (2009) about the development of the agricultural of cities of Khorasan with the method of the numerical taxonomy concluded that Chenaran, Fariman and Sabzevar cities than other cities have higher degree of Agricultural Development and Kalat, Nishapur, Gonabad are also in a low degree.

Taghvaei and Rezaei (2004) with the using of classification techniques of the numerical taxonomy to determine the degree of development of rural areas of Ilam concluded that Greatest amount of benefiting villages in the city was Shirvan chardavol city and Ilam, Darrehshahr, Dehloran, Mehran, Ivan and Abdanan are located in the next categories.

Movahhed and et al (2011) in a study with titled "Analysis of the degree of development of the city in Khuzestan province by using factor analysis

and cluster analysis" paid to determine the degree of development of the cities of Khuzestan province. For this purpose, they paid by using 25 indicators of urban development, through factor analysis to analyze the indicators. The results of their research showed that Abadan, Andimeshk, Ahvaz, Bandar Mahshahr, Behbahan, Rāmhormoz, Shushtar, Omidiyeh are developed, Counties of Izeh, Khorramshahr, Dashte Azadegan, Shadegan, Masjed Soleiman, Shoosh, Baghmalek are less developed and the cities of Dezful, Lali, Hendijan, Ramshir, Gotvand Are among the underdeveloped city .

Soleimani (2008) study about determining the degree of development of rural areas in the city of Rasht by using numerical taxonomy and reported that: However, the overall improvement of all areas in the process of rural development is important, But attention to deprived rural areas and having less in terms of securing their basic needs and the adjustment for differences in their availability levels Is more important. In Rasht, even though all the villages in the development process need to preparing and implementing of projects Proportional to the type and level of their exclusion but six villages from the collection of villages, because in all aspects of social, economic and physical are in deprived condition, have a greater priority to the implementation of targeted development programs. The six Villages are included Jyrahndeh, Kenarsar and Noshahr, Balasbaneh, Lacan and Pirbazar.

Bhatia and Rai, (2004) by using 23 indicators (12 indicators for agriculture and 11 underpinning index) by using factor analysis and numerical taxonomy, paid to determine the level of agricultural development of 380 blocks in 32 districts of India in the 2001's period. Based on the results of 56 blocks relatively developed Relatively developed based on the results of 56 blocks, 116 blocks were introduced less developed and developing 52 blocks.

Soares et al, (2003) in research by using factor analysis and cluster, the country of Portugal in periods of 1991 and 1995 were evaluated and ranked in terms of development.

Research Questions

Is there the possibility of assessment of Level of development of Guilan Agricultural by the method of numerical taxonomy?

Is there a significant difference in the amount of deprivation and inequality agricultural development in rural areas of the central city of Rasht (at villages' level)?

How would be ranking the rural areas of the central city of Rasht in terms of agricultural development by using the method numerical taxonomy?

Research Methodology

This study is an applied in terms of the nature and is a research that by using the results of basic research has done to improve and integrity in the behavior, methods, tools, equipment, products, structures and patterns of human societies. The research on the nature and type of study is secondary analysis of data and available statistics. In other words, the information and indicators collected for each village and using appropriate statistical methods of the numerical taxonomy discussed to rank and classification of rural areas of the central city of Rasht. The study population consisted of rural areas is the central city of Rasht.

Statistical Analysis and Hypothesis Testing

Numerical taxonomy are using to determine the level of development and evaluation of research questions. In other words, in the numerical taxonomy method that is a method of measuring the degree of development, one of the initial steps in the calculation is to determine the areas of homogeneous and heterogeneous areas is removed which contributed to the analysis results. That standard matrix of villages was calculated and results provided in the below table.

Row	village	Development pattern C_{io}	size of the development d_i	ranking
1	Mobarak Abad	1.615	.672	11
2	Nokhodchar	1.626	.801	15
3	Shalko	1.474	.613	5
4	Falakdeh	1.445	.601	1
5	Pasikhan	1.932	.803	16
6	Bijarpas	1.5	.624	6
7	Bijarkenar	1.646	.684	12
8	Siaestalakh	2.183	.908	18
9	Tosarvandan	1.447	.602	2
10	Tarazkoh	1.894	.788	14
11	Siagalvandan	1.609	.669	9
12	Pishevar	1.474	.613	9
13	Bijarbaneh	1.472	.612	4
14	Vishga Sogheh	1.513	.629	7
15	Gorab varzal	2.380	.990	20
16	Pas Visheh	1.718	.714	13
17	Kaftrod	2.294	.954	19
18	Saghalaksar	1.601	.666	8
19	Katigar	1.614	.671	10
20	Pirkalachah	1.458	.606	3
21	Tash	2.1	.873	17
Average of development pattern C_{io}			1.761	
The standard deviation of development pattern S_{io}			.321	
Upper limit C +			2.403	
Lower limit C-			1.119	

Table: That standard matrix of villages was calculated and results provided in.

Among the reasons that rural development is Falakdeh in the first place, the high ratio of beneficiaries with agricultural land of beneficiaries, tractors per beneficiary per capita and the ratio of the total area under cultivation for sprinkler irrigation crops is. It seems that lack of crushing of farms has dramatic impact of high per capita arable land area per beneficiary. This makes the development of a pressurized irrigation system better (With regard to the status of pressurized irrigation in the village) and also provides the other hand on the use of other technologies. The ratio of beneficiaries to the land of the farmers in the city of Falakdeh, Nokhodchar, Shalkoh, Tarazkph, Bijarbaneh, Katigar, Saqalaksar, is high and the mentioned index is higher in Shalkoh than other villages. Capita index of agricultural cooperatives for 1,000 per beneficiary in the villages MOBARAKABAD, Byjarknar, Byjarbnh, then Vyshh, Kftrvd and Pyrklachah higher figure than other villages and in Kaftrod although in the cooperative activities toward other

villages have the better development and its experience can be used in the other villages, However, due to low level in the other indicators has very down position. Capita tractor per beneficiary in the villages of Falakdeh, Nokhodchar, Tosarvandan, Bijarbaneh, Saqalaksar, and Katigar is higher. The ratio of the above index in Nokhodchar is the higher amount than other villages but not has a good place. Index the ratio of electro pumps to the total electro pumps and diesel electro pumps (percent) villages of Falakdeh, Mobarak Abad, Nokhodchar, Pasikhan, Bijarpas, Bijarkenar, Siah Galvandan had better development and Bijarkenar village due to the high pressurized irrigation place toward other villages, could be as a model in terms of the using electro pumps instead diesel pump And can use it's experience in the other villages to develop electro pumps.

Capita Index for cultivated area for each beneficiary (ha) Mobarak Abad, Falakdeh, Pasikhan, Tarazkoh, Pasvisheh, Kaftrod and 279

Pirkalachah is higher and Pasvisheh has highest index cultivated for each beneficiary (ha) compared to the other villages. Ratio index irrigated under pressure cultivation to the total area of irrigated crops, In the province, just in the villages Falakdeh, Nokhodchar, Shalkoh, Pasikhan, Saqalaksar, Katigar, Pirkalachah and Tash, has been development and Katigar due to the high proportion of cultivation under pressurized irrigation to the total cultivation crops than other cities, has best development of pressurized irrigation systems and can be a suitable model for other villages.

Conclusions and findings

The findings confirmed that using numerical taxonomy, it is possible to assess the level of development of Guilan Agricultural and according to the standard deviation of the model of development (Sio) that is obtained, and it appears that there is significant differences in terms of deprivation and inequality agricultural development in rural areas of central Rasht and with attention to the numbers obtained Under the title the size of development (di), ranking rural areas of the central city of Rasht in the amount of development has taken place.

The study has used of six indicators to assess the level of development of Guilan. To determine the respective indices, in addition to the use of indicators in the past, that was associated with agriculture, the experts' idea was also used. It is worth mentioning that one of the important indicators of the development of agriculture, is value added, or the value of production in the various regions. Since it is very difficult to have access to such data, the index of per capita arable land area has used that this index has a significant impact on the income of the various regions.

It seems that the lack of Crushing farms has a great impact on the high per capita arable land area per beneficiary. This issue, on the one hand lead to better development of pressurized irrigation systems, and the other hand on the use of other

technologies also provides. Although comparative advantage in promoting agricultural areas growth is effective, but having the right weather conditions and prone agricultural land, along with cooperatives and mechanization and scientific and technological and construction progress that can increase yield per hectare and caused the development of the agricultural sector.

Functional Suggestions of Research

If the regions are facing with a crisis of inputs, especially water, the plans of agricultural development must have been to the conservation and optimum using of resources, which may also cause to reduce cultivated area.

Further support for irrigation projects under pressure and also using of successful experiences in the development of agricultural cooperatives has significant impact on the development of its agricultural sector.

To resolve the causes of underdevelopment of agriculture through the rankings of rural areas in terms of agricultural development pay to allocating of resources and doing activities required in each region.

Suggestions for Future Research

Conducting research in other provinces and also in other rural and agricultural areas and comparing their results together.

Reviewing the status of agricultural development in the economy of developing and underdeveloped countries

Reviewing of present study through other possible methods, such as method Mauritius etc.

Limitations of Research

- Lack of existence of thesis with the topic of evaluation of agricultural development (especially) with the method of numerical taxonomy
- Lack of up-to-date the information of statistical yearbook of province

- Lack of sufficient cooperation Agricultural Jihad Organization

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