

The Comparative Evaluation of the Underdevelopment Degree- A Case Study of The Villages of Roudsar City

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Received: November 17 2013

Accepted: December 13 2013

ABSTRACT

Economic development examines improvements in kinds of indexes such as life expectancy, literacy rates, and poverty rates. The most important goal of any societies is the economic development. Thus, it is necessary to know the possibilities of the different areas of any country. The purpose of this study is to investigate and compare the degree of development in the villages of Roudsar City in 2011. This paper explains the numerical taxonomy method and its mathematical relationship and offers the various suitable indexes of economic development. And then based on the statistical documents and using 38 common indicators of economical, social, educational and so on determines the ranking each village of Roudsar City in terms of Economic welfare in the years during 2001 and 2011. The research results are as follows: underdevelopment degrees of the villages of Roudsar City have reduced in the years during 2001 and 2011 and in this decade, the economic situation has been improved and the villages' underdevelopment coefficient has changed from 0.673 to 0.564. Although the rate of improvement has not been uniform in all the villages during this decade, economic duality of the villages has reduced these ten years. And the improvement percentages of the poor villages are more than rich villages. According to the findings, the research suggests in the reduction of the regional inequalities be a priority policy in the areas.

KEY WORDS: degree of development, indicators of underdevelopment, numerical taxonomy and Roudsar City.

1- INTRODUCTION

Development economics is a branch of economics which focuses on improving the economies welfare of people. It considers how to promote economic growth in different societies by improving factors like education, health, working conditions, domestic and international policies and market conditions. Development in the general means to improve the quality of life in all its aspects is nothing more than the increase in revenue, poverty reduction and so on [11,13].

All of the governments try to provide increasing of the people welfare or to achieve economic development. The reducing of regional duality is the most important of economic goal in every society. To achieve that should be improved the various aspects of development in all of the areas. It is important to design a model for ranking of each village in order to remove barriers of economic development [9, 19, and 12]. There are so many researches about the economic regional duality.

For example, F.Sameni Keivani and his colleagues (2013) have investigated Underdevelopment Degree of Different Regions in the Cities of Guilan Province in Iran and the other research, Badri and others (2007) have analyzed the development degrees of rural areas Kamyaran city. The findings of that research results show that the rate of development among areas of Kamyaran is not equal. In the Kamyaran city five villages are in developing, one is the developed and one is the undeveloped [3]. Unfortunately it has not been any research about the regional duality in Roudsar city and this study compensates the lack of the scientific reference about this matter.

Roudsar city is a city of Guilan province in Iran. It is divided four sections and 10 villages which its parts are called Kelachay (is composed of Machiyan and Bibalan), Chaboksar (is composed of Siyahkalroud and Oshiyani), Rahim Abad (is composed of Rahiemabad, Eshkevare Sofla, Shoel and Siyarastaq) and Roudsar (is composed of Rezamahleh and Chineijan).

In this study, the towns are ranked based on the rate of underdevelopment. The Rich and the poor areas are specified in this city. The study uses of 38 related cases with different population and economical, educational, cultural, hygienic, dwelling and welfare facilities, industrial and roads for compare in 2001 and 2011 ; that 4 cases related to population part and economic part, 6 cases related to education part, 5 cases related to hygiene and therapy

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part , 4 cases related to industry part, 6 cases related to culture part, 3 cases related to roads and 4 cases related to substructure part and 6 cases related to service part

The research main hypotheses are as follow:

- The most social and economic facilities are allocated to Chineijan village.
- There is a development gap in villages of Roudsar City.
- The distribution of the development indicators is unbalanced in villages of Roudsar City.
- The economic indicators of villages have been improved in the years during 2001 and 2011.

2- RESEARCH METHODOLOGY

There are some different methods to estimate the development degree in the different regions. One of the best methods is the numerical Taxonomy [1, 2, and 6]. First, this method suggest by M. Anderson in 1763. Today the Numerical Taxonomy is employed for activities, economic sectors, towns, regions, countries ranking with respect to several different or sometimes contrasting economic and social factor indices. There are many evidences in implementation of this method in Iran like the entire world [8].

By using this method, it is possible to define homogenous groups in the cities and specify villages under developing degree. Performing steps of the numerical taxonomy method came as the following [4, 18]:

Step 1: First, it is considering a matrix (n X m) which n indicates the number of villages (here it is 10) and m is used as the number of indicators (here it is 38).

$$IN = \begin{bmatrix} IN_{11} & IN_{12} & \cdots & IN_{1m} \\ IN_{21} & IN_{22} & \cdots & IN_{2m} \\ \vdots & \vdots & \cdots & \vdots \\ IN_{n1} & IN_{n2} & \cdots & IN_{nm} \end{bmatrix}$$

Thus, each row of this matrix shows indicators of one village.

The indicators of this study are including:

Reverse rate of unemployment, Per cent of burgess, Proportional Frequency population (Frequency person in square kilometer), Rate of the number of kindergarten as compared with, the number of beginners, Reverse size of family, Rate of the number of primary schools as compared with the number of population regions, the ratio of number of elementary classes to the number of elementary students, Rate of the number of primary classes to the number of primary students, Rate of the number of elementary schools to the number of population regions, Rate of the number of high school to the number of the populated places, the number of laboratory centers of the number of population regions, the number of pharmacy to the number of population regions, the number of hygiene houses of hygiene to the number of villages, rate of the number of classes to the number of students in general high school, the number of cinema to the number the populated places of village, the number of general libraries to the number the populated places, the number of books libraries of mental training club for the children and teenage for per 1000 persons, the number of general courts to the number of the populated places, the rate of the number of structural permits for per 1000 family, the rate of the number of every doctor for per 1000 persons, the number of subscribers in domestic electricity to the number of family, the number of subscribers in industrial electricity for per 100 families, percent of the populated places that have electricity in the village, the number of available books in general libraries for per 1000 persons, the number of libraries of mental training club for children and teenage to the number of the populated places of the village, the number of gasoline stations for per 1000 persons, the total rate of asphalt roads for 10 squares kilometer form measurement of the village, the total rate of asphalt roads for per 10000 persons, the rate of main roads for per 1000 persons in each area, the rate of the number taxi for per 1000 persons in village, the number of post agency rate to the number of the populated places, percent of the populated places have telephone rate of expense industrial electricity to total rate expense electricity of the area, the number of rural post – box for the number of the populated places, the number of village post – box rate to the number of the populated places, the number of hygienic and therapy centers for every 1000 persons in the village, the number of the populated places have gas rate to total the populated places, the number of the populated places have gas rate to total villages.

Step 2:

At this point, the matrixes will standardize, it means that makes mean and variance of all indicators to be 0 and 1, respectively. [5, 7, 14 and 17]

$$SIN = \begin{bmatrix} SIN_{11} & SIN_{12} & \cdots & SIN_{1m} \\ SIN_{21} & SIN_{22} & \cdots & SIN_{2m} \\ \vdots & \vdots & \cdots & \vdots \\ SIN_{n1} & SIN_{n2} & \cdots & SIN_{nm} \end{bmatrix} n \times m$$

The matrix members are calculated as follows:

$$SIN_{ij} = \frac{IN_{ij} - \overline{IN}_j}{S_j} \quad j=1,2,3,..m$$

Step 3: The distances between districts are calculating with using of the following matrix [20]:

$$D = \begin{bmatrix} D_{11} & D_{12} & \cdots & D_{1n} \\ D_{21} & D_{22} & \cdots & D_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ D_{n1} & D_{n2} & \cdots & D_{nn} \end{bmatrix} n \times m \quad d = \begin{bmatrix} d_1 \\ d_2 \\ \vdots \\ d_n \end{bmatrix}$$

$$\text{And the D is: } D_{ab} = \sqrt{\sum_j^m 1(SIN_{aj} - SIN_{bj})^2}, \quad \bar{d} = \frac{\sum_{i=1}^n d_i}{n}$$

$$L_2 = \bar{d} - 2S_d \quad L_1 = \bar{d} + 2S_d$$

Step 4: Then, the most amounts in each column is determined as ideal amount and the gap of each area from ideal area determined with using the following equation [13].

$$C_{io} = \sqrt{\sum_{j=1}^m (SIN_{ij} - SIN_{oj})^2}$$

The villages' underdevelopment degrees are determined as the following equation [16]:

$$d_j = \frac{C_{io}}{C_o}$$

Note: d_i shows the underdeveloped degree

The C₀ is obtained from the following formula:

$$C_o = \overline{C_{io}} + 2S_{io}$$

$$S_{io} = \sqrt{\frac{\sum_{i=1}^n (C_{io} - \overline{C_{io}})^2}{n}}, \quad \overline{C_{io}} = \frac{\sum_{i=1}^n C_{io}}{n}$$

RESULTS AND DISCUSSION

The findings indicate that the four villages of Roudsar were above of the underdevelopment line in 2001(See Tab.1 & 2 & Fig.1). Chineijan and Shoeil Villages are the most development and underdeveloped Roudsar City, respectively, in 2001 and 2011. On the other hand, if the underdevelopment coefficient in 2011 be considered the same as coefficient of 2001, all of villages are transferred to the above of the underdevelopment line but if it be considered the coefficient of same year three villages are above of the underdevelopment line. By comparing of the findings in years 2001 and 2011, it can be said the following results:

1 - In this decade, the economic facilities of different areas of Roudsar have been increased and the villages' underdevelopment coefficient has changed from 0.673 to 0.564. However, the improvement rates have not been uniform in all the villages during this decade. For example, the grade of Bibalan and Siyahkalroad have increased in

2011 the compared of 2001. Conversely, the grades of Oshiyān and Machiyan have reduced. Whereas, it has not changed for Siyarastaq, Eshkevare Sofla, Rahiemabad, Rezamahleh, Shoel and Chineijan Villages.

2 – The facilities distribution is almost non-duality in this year's (see Table.3 & Fig.2,3) and reviews On average, the improvement percentage of underdevelopment degree of deprived areas (below of the underdevelopment line) is more than improvement areas and the inequality coefficient (the duality) has decreased from 0.182 in 2001 to 0.165 in 2011.

According to, the regional duality in Roudsar, the research suggests in the reduction of the regional inequalities be a priority policy.

Table 1: The underdevelopment degree in villages of Roudsar separately in 2001

Names of villages	Development Ranking in 2001	Degree of Underdevelopment in 2001
Chineijan	1	0.41
Machiyan	2	0.53
Siyahkalroud	3	0.64
Rahiemabad	4	0.66
Rezamahleh	5	0.69
Oshiyān	6	0.72
Bibalan	7	0.73
Eshkevare Sofla	8	0.76
Siyarastaq	9	0.78
Shoel	10	0.81
Underdevelopment line		0.673
Intensity of inequality		0.182
The most developed		Chineijan
The most underdeveloped		Shoel

Table 2: the underdevelopment degree in villages of Roudsar separately in 2011

Names of Villages	Development Ranking in 2011	Degree of Underdevelopment in 2011
Chineijan	1	0.35
Siyahkalroud	2	0.49
Machiyan	3	0.51
Rahiemabad	4	0.57
Rezamahleh	5	0.58
Bibalan	6	0.60
Oshiyān	7	0.61
Eshkevare Sofla	8	0.62
Siyarastaq	9	0.65
Shoel	10	0.66
Underdevelopment line		0.564
Intensity of inequality		0.165
The most developed		Chineijan
The most underdeveloped		Shoel

Table 3: the Changes of Underdevelopment of villages of Roudsar

Name of Villages	Degree of Underdevelopment in 2001	Degree of Underdevelopment in 2011	Percentage of improvement	Development Ranking in 2001	Development Ranking in 2011	Improvement in the ranking
Bibalan	0.73	0.60	0.18	7	6	1
Chineijan	0.41	0.35	0.15	1	1	0
Sofla Eshkevare	0.76	0.62	0.18	8	8	0
Machiyan	0.53	0.51	0.04	2	3	-1
Oshiyān	0.72	0.61	0.15	6	7	-1
Rahiemabad	0.66	0.57	0.14	4	4	0
Rezamahleh	0.69	0.58	0.16	5	5	0
Shoel	0.81	0.66	0.19	10	10	0
Siyahkalroud	0.64	0.49	0.23	3	2	1
Siyarastaq	0.78	0.65	0.17	9	9	0

Fig. 1: the levels of underdevelopment, overall in 2001 and 2011 (Using the column charts)

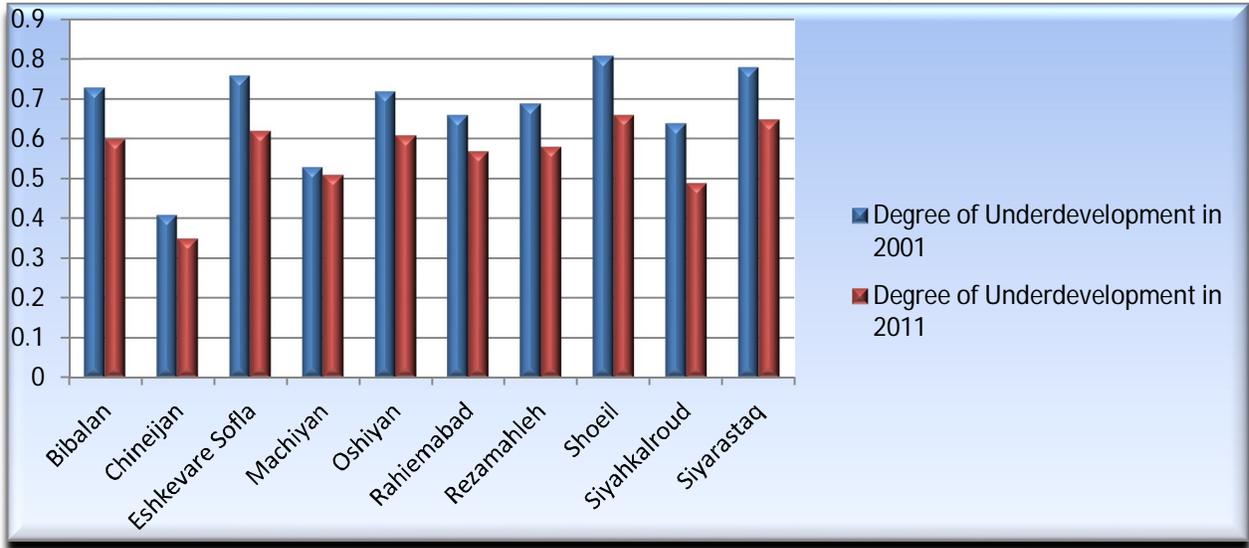


Figure.2: The development levels, overall in 2001 and 2011 (Using the pie chart)

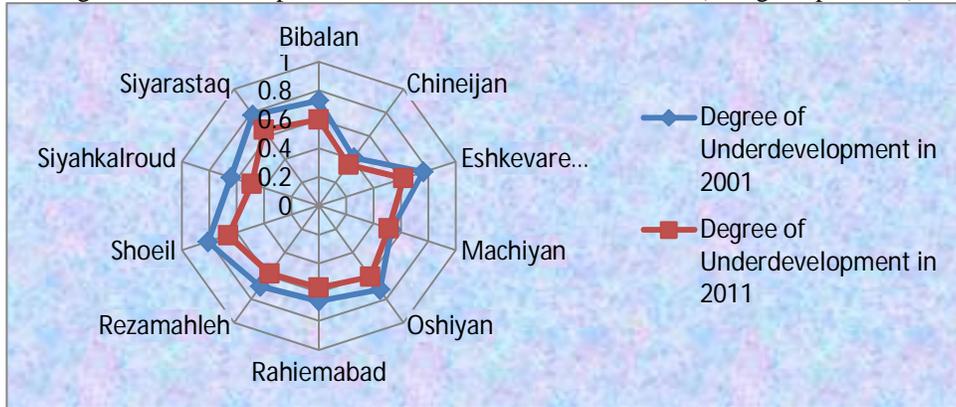
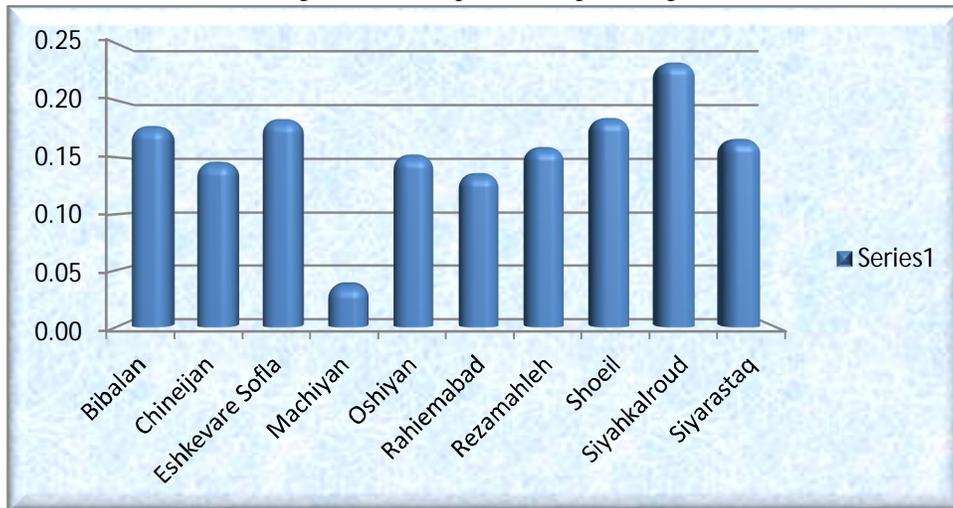


Figure.3: The improvement percentage



CONCLUSION

One of the most important objectives of each society is the economic development. This survey investigates and compares the degrees of the development in villages of Roudsar City in 2011 by using numerical taxonomy method. However, due to the findings of this study, the economic duality of the villages of Roudsar has reduced these ten years but for more development the paper suggests to reduce of regional inequalities as a priority policy in the areas.

ACKNOWLEDGEMENT

Now I find an opportunity to thank Dr. Majid Ashouri as the Dean of Islamic Azad University of Roudsar and Amlash Branch and Mr. Bahman Panjalizadeh as the Head of the Research Office of the University who provided technical assistance and supported me to study and preparation of this research. This paper mainly is taken by using of the research project is called An Analysis of the Degree of Development of Cities in Guilan Province that was supported by Islamic Azad University of Rudsar and of Amlash Branch in Iran.

Acknowledgment

The authors declare that they have no conflicts of interest in the research.

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