



ANALYSIS OF THE RATE OF DEVELOPMENT OF KERMANSHAH DISTRICTS VILLAGES BASED ON TOPSIS

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ABSTRACT

Rural development can be a factor in improving the living conditions of people belonging to the low-income class in rural areas, making them self-sufficient, as the overall development process. Rural development requires planning, and one of the crucial factors in the success of development planning, a comprehensive and efficient planning system. This study, based on an analytical - descriptive statistics, as well as utilizing textual sources and fieldwork, the evaluation of rural development in Kermanshah district, based on Topsis, has committed. Results of the study indicate that, in the villages of Kermanshah district, based on development, so the categories were: (Chaghanarges, Razavar, Jalalvand, Mahidasht, Doroodfaraman, Qarehsoo, Sanjabi, Poshtdarband, Baladarband, Haftashian, Sarfiroozabad and Osmanvand). So Chaghanarges district, the most developed villages (by a factor of 0.542), and the District Osmanvand, lowest (by a factor of 0.287), which is for further study, and also to find the reasons for this difference requires research is more academic, this study only as a way to plan ahead is.

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1. INTRODUCTION

Basically, the exact knowledge of rural issues is of considerable importance. The root of all the problems and issues of underdevelopment, such as widespread poverty, growing inequality, rapid population growth and rising unemployment in rural areas is (Todaro, 1985). The main goal of sustainable rural development, to include, make our life livable for current and future generations, with particular emphasis on improvement and continuous development of human relationships - the environment (Saidi, 1998). On the other hand, rural development may be a factor in improving the living conditions of persons belonging to the class of low-income rural areas, making them self-sufficient, as the country's overall development (Saidi, 1998). Rural development requires planning and is one of the crucial factors in the success of development planning, a comprehensive and

efficient planning system (Rezvani, 2001). Rural development, conceptual history, though it's meaning in terms of content and functionality, in line with the development organization in rural areas, is constantly changing. Indeed, the importance of rural development in less developed countries, largely due to the important role of rural areas, the economy is their (UNDP Hunan development Report, 1992). In this context, and in the planning process and the development of rural areas, to identify and analyze the existing villages, and explore the possibilities and limitations, they are essential in many fields, and planners to set clear goals and policies, the policies and strategies to achieve them will help. In this process, the determination of benefit levels and the development of rural areas, and evaluate the strengths and weaknesses of each area in the field of economic, social, cultural and physical, on the optimal allocation of resources, and opportunities to develop a coordinated, integrated and balanced to provide rural makes. In general, the term rural development, improving the economic and social changes, people living in rural areas implies, whereby, on the improvement of income, health, education, drinking water facilities, power supply, housing, facilities, transportation facilities, and transport and communications are provided in rural areas.

2. RESEARCH LITERATURE

Zarrabi (2011) cluster analysis and the TOPSIS method for spatial analysis of ecotourism Sistan used. The results indicate that it was, well, mid Sistan plain and mountain lakes eunuch, due to the high potential of attracting ecotourism, are at the highest level. Bahrami (2010) examines the capabilities and limitations of rural tourism development in Kurdistan Province is discussed, based on studies that have been conducted, the conclusion is reached that threshold of vulnerability in rural areas, because of the western province of Tourism quite high and need to be revised, and provide favorable policies, in order to overcome the limitations and advantages are available. (Agha, 2011) a study of rural tourism, and local sustainable development (case study: varkane Village in Hamedan district) paid, and this study shows that, regardless of the parameters of sustainable development of rural tourism, rural, rural areas target, not development its goals in these areas, it can achieve. Ghaffari (2011) the level-based and space planning of rural tourism, the central part of city Boyer studied, and the results indicated that the realm of the natural attractions, numerous and diverse culture and history, the development of tourism has but the uneven distribution of services and facilities in rural absorber centers, and inconsistent with the position of spatial each has been implementing strategies in the development of the structure and spatial organization, which governs areas of rural tourism were presented, and for each of the levels, equipment and infrastructure accordingly. Ghanbari and Karimi (2011) research on rural tourism as planned, a new tool in rural development (case study: district of Natanz), while articulating the rural attractions of the region, to explore its environment, based on temperature and humidity attempt, and the results indicate that, in the district of Natanz, in September, December and April, the ideal situation is that the best conditions, which are available, are the best months to visit the city.

3. METHODS OF RESEARCH

The aim of the present study, are considered exploratory and data analysis aspects of, a little. Descriptive and analytical approach with a comparative approach, village and rural population of the Kermanshah district. Information obtained from indicators used (Table 1), based on studies documents, library and check survey (see the field and the experts), is obtained. In this study, to rank indicators of effective classification, the optimal location of (Supplementary), considering the circumstances, the classification method preference ranking, based on an idea similar to the response of al, who briefly called TOPSIS, and the method of decision multilateral measures, and has several characteristics, were used.

TOPSIS method, this concept is based on the options selected, shortest distance to the ideal solution concept, and yet farthest from the non- ideal solutions al, is (Asgharpoor, 2013). Based on this technique, option would be the best option, the shortest distance to the ideal solution always a positive one, and the maximum distance to the negative ideal solution 2 idea solution there. The idea of a positive ideal solution way indexes to fix the maximum and minimum cost kills them. While the idea of solving al- negative, the index the maximum cost, and the benefits they bring to at least (Amirhajlii et al., 2013). Then, in the later stages of the implementation of this method will be described.

4. RESULTS OF THE RESEARCH

Advantage of TOPSIS technique (TOPSIS), is required to carry out the steps that are mentioned below are (Olson, 2004).

First step: data matrix, based on n option, and the index k;

Formed data matrix, the dimensions $n \times k$, so that n, the number of rows in the matrix and represents the district studied, and k columns of that, desired index number (here 12 = k) that is. The basic matrix, here the score of each rural development indicators for each district, which, it is regarded as a crude index (Table 1).

Table-1.Matrix of Early rural development villages of the Kermanshah district

index village	Proportio n of health centers, the number of villages	Per doctor, the number of villages	School compar ed to the number of villages	Than high school and high school, the number of villages	Library compari son, the number of villages	Towards sports facilities, the number of villages
Jalalvand	0.02	0.05	0.09	0	0	0
Sarfiroozabad	0.01	0.04	0.15	0.06	0.01	0
Osmanvand	0	0	0.09	0	0	0
Sanjabi	0.03	0.05	0.12	0.08	0	0
Haftashian	0	0	0.04	0	0	0
Chaghanarges	0.02	0.05	0.05	0	0	0.02
Mahidasht	0.03	0.08	0.23	0.15	0	0.01
Baladarband	0.02	0.05	0.1	0.02	0	0
Poshtdarband	0.05	0.09	0.27	0.07	0	0

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Doroodfaraman	0.04	0.13	0.34	0.08	0	0
Razavar	0.04	0.13	0.46	0	0.04	0
Qarehsoo	0.02	0.07	0.11	0	0	0
Miandarband	0.03	0.07	0.17	0.02	0	0
index village	Villages will benefit from the gas ratio, the number of villages	Than villages benefited from the post office, the number of villages	Proportion cooperatives, rural village	The ratio of bank branches, the number of villages	Toward the village benefit from safe drinking water, the number of villages	The population density
Jalalvand	0	0.02	0.02	0	0.16	18.36
Sarfiroozabad	0.01	0.02	0.01	0	0.55	17.52
Osmanvand	0	0.02	0.02	0	0.32	9.91
Sanjabi	0	0	0.01	0.03	0.2	21.49
Haftashian	0	0	0.04	0	0.17	16.32
Chaghanarges	0.21	0.02	0.02	0	0.14	28.74
Mahidasht	0.04	0.01	0.01	0.05	0.18	22.28
Baladarband	0	0.03	0.02	0	0.19	48
Poshtdarband	0	0.05	0.05	0	0.18	36.28
Doroodfaraman	0	0.02	0.02	0.02	0.23	75.1
Razavar	0	0.04	0.04	0	0.29	41.88
Qarehsoo	0	0.02	0.06	0	0.15	24.93
Miandarband	0	0.01	0.02	0.01	0.69	35.09

Source:(Office of Statistics and Information, 2008).

The second step in data standardization (Bscaling values) , and the standard matrix;

In this step, in order to eliminate the effect of different units, and the ability to perform algebraic operations on the index of, formed data matrix, the stage of pre standards (Table 2).Standard matrix form, we can use this relation implemented:

$$\text{Equation (1)} R_{ij} = \frac{a_{ij}}{\sqrt{\sum_{k=1}^m a_{kj}^2}}$$

Table-2. Raw data standardization rural development in the Kermanshah district

index village	Proportion of health centers, the number of villages	Per doctor, the number of villages	School compared to the number of villages	Than high school and high school, the number of villages	Library comparison, the number of villages	Towards sports facilities, the number of villages
Jalalvand	0.1990074	0.1893885	0.1201389			
Sarfiroozabad	0.0995037	0.1515108	0.2002315	0.2841082	0.2425356	0
Osmanvand	0	0	0.1201389	0	0	0
Sanjabi	0.298511158	0.1893885	0.1601852	0.3788109	0	0
Haftashian	0	0	0.0533950	0	0	0
Chaghanarges	0.199007438	0.1893885	0.0667438	0	0	0.8944271
Mahidasht	0.298511158	0.3030216	0.3070216	0.7102705	0	0.4472135
Baladarband	0.199007438	0.1893885	0.1334876	0.0947027	0	0
Poshtdarband	0.497518596	0.3408993	0.3604167	0.3314596	0	0
Doroodfaraman	0.398014877	0.4924101	0.4538580	0.3788109	0	0
Razavar	0.398014877	0.4924101	0.6140433		0.9701425	0
Qarehsoo	0.199007438	0.2651439	0.1468364	0	0	0
Miandarband	0.298511158	0.2651439	0.2269290	0.0947027	0	0

index village	Villages will benefit from the gas ratio, the number of villages	Than villages benefited from the post office, the number of villages	Proportion cooperatives, rural village	The ratio of bank branches, the number of villages	Toward the village benefit from safe drinking water, the number of villages	The population density		
Jalalvand		0	0.2294157	0.1825741	0	0.1427945	0.1467167	
Sarfiroozabad	0.046726931	0.2294157	0.0912870		0	0.4908562	0.1400042	
Osmanvand		0	0.2294157	0.1825741		0	0.2855890	0.0791918
Sanjabi		0	0	0.0912870	0.4803844	0.1784931	0.1717289	
Haftashian		0	0	0.3651483		0	0.1517192	0.1304148
Chaghanarges	0.981265557	0.2294157	0.1825741		0	0.1249452	0.2296644	
Mahidasht	0.186907725	0.1147078	0.0912870	0.8006407		0.1606438	0.1780418	
Baladarband		0	0.3441236	0.1825741		0	0.1695685	0.3835731
Poshtdarband		0	0.5735393	0.4564354		0	0.1606438	0.2899173
Doroodfaraman		0	0.2294157	0.1825741	0.32025630	0.2052671	0.6001322	
Razavar		0	0.4588314	0.3651483		0	0.2588151	0.3346676
Qarehsoo		0	0.2294157	0.5477225		0	0.1338698	0.1992183
Miandarband		0	0.1147078	0.1825741	0.1601281	0.6158014	0.2804079	

Continue

Source: Results of the research

5. THIRD, THE WEIGHT APPLIED TO NORMAL VALUES

Because usually, indicators used, and the values are not equal importance, therefore, to eliminate the difference between and are required to calculate the weight of, index of the desired action. Weight of each index, and (Wn), a species that is, index of weight equal to one in with. Important indicator of, give more weight to the accounts. rated for the weight, it can different methods, including methods panel experts, Shannon entropy 1, eigenvector, AHP, ANP and Linmap Bull (Rezvani et al., 2011). In this study, the weight of the blooming to index of each case study, the entropy method is used, which is discussed later be. Entropy is a measure of information theory, the value of uncertainty expressed by a discrete probability distribution (Pi), so that the uncertainty in the air distribution than is the case, sharper frequency (Shannon) is (Asgharpoor, 2013). This uncertainty is described as follows:

Equation (2)

$$E \approx S\{P_1, P_2, \dots, P_n\} = -k \sum_{i=1}^n [P_i \cdot \ln p_i] \quad i = 1, 2, \dots, n$$

Such that k is a positive constant. In order to provide $0 \leq E \leq 1$, E, of the probability distribution p_i , calculated on the basis of statistical mechanisms, and its value, if p_i equal, with each $(p_i = \frac{1}{n})$ would be the maximum possible value. Namely:

$$-k \sum_{i=1}^n P_i \ln P_i = -k \ln \frac{1}{n}$$

In the following steps entropy method, is expressed as (Asgharpoor, 2013).

Index	Toward the village benefit from safe drinking water, the number of villages	The population density	The ratio of bank branches, the number of villages	Proportion cooperatives, rural village	Than villages benefited from the post office, the number of villages	Villages will benefit from the gas ratio, the number of villages
weight	0.135	0.1	0.04	0.06	0.09	0.125

Source: Results of the research

So in the end, the weight of each index, the matrix must be standard, the second step of the standard matrix-matrix multiplication to obtain the weighted and normalized(Table 4).

Table-4. Matrix was less than harmonious

Village	index	Proportion of health centers, the number of villages	Per doctor, the number of villages	School compared to the number of villages	Than high school and high school, the number of villages	Library comparison, the number of villages	Towards sports facilities, the number of villages
Jalalvand	0.02288585	5	0.0198858	0.00840972	0	0	0
Sarfiroozabad	0.01144293	0	0.0159086	0.01401620	0.019888	0.0133395	0
Osmanvand	0	0	0.00840972	0	0	0	0
Sanjabi	0.03432878	0	0.0198858	0.01121296	0.026517	0	0
Haftashian	0	0	0.00373765	0	0	0	0
Chaghanarges	0.02288586	0.0198858	0.00467206	0	0	0	0.0313049
Mahidasht	0.03432878	0.0318173	0.02149151	0.049719	0	0	0.0156525
Baladarband	0.02288586	0.0198858	0.00934413	0.006629	0	0	0
Poshtdarband	0.05721464	0.0357944	0.02522917	0.023201	0	0	0
Doroodfarama	0.04577171	0.0517031	0.03177006	0.026517	0	0	0
Razavar	0.04577171	0.0517031	0.04298303	0	0.0533578	0	0
Qarehsoo	0.02288586	0.0278401	0.01027855	0	0	0	0
Miandarband	0.03432878	0.0278401	0.01588503	0.006629	0	0	0
index	village	Villages will benefit from the gas ratio, the number of villages	Than villages benefited from the post office, the number of villages	Proportion cooperatives, rural village	The ratio of bank branches, the number of villages	Toward the village benefit from safe drinking water, the number of villages	The population density
Jalalvand	0	0.0206474	0.01095445	0	0.0192773	0.0146716	
Sarfiroozabad	0.00584087	0.0206474	0.00547722	0	0.0662656	0.0140004	
Osmanvand	0	0.0206474	0.01095445	0	0.0385545	0.0079191	
Sanjabi	0	0	0.00547722	0.019215	0.0240966	0.0171728	
Haftashian	0	0	0.02190890	0	0.0204821	0.0130414	
Chaghanarges	0.12265819	0.0206474	0.01095445	0	0.0168676	0.0229664	
Mahidasht	0.02336346	0.0103237	0.00547722	0.032026	0.0216869	0.0178041	
Baladarband	0	0.0309711	0.01095445	0	0.0228918	0.0383573	
Poshtdarband	0	0.0516185	0.02738612	0	0.0216869	0.0289917	

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Doroodfarama	0	0.0206474	0.01095445	0.012812	0.0277117	0.0600132
Razavar	0	0.0412948	0.02190890	0	0.0349400	0.0334668
Qarehsoo	0	0.0206474	0.03286335	0	0.0180724	0.0199218
Miandarband	0	0.0103237	0.01095445	0.006405	0.0831332	0.0280408

Source: Results of the research

The fourth step is to determine the ideal solution idea of ideal and non-ideal solutions; Determine the distance d_i^+ . Alternative, alternative ideas of all positive (maximum effectiveness index), which is A^+ is shown, and determine the distance between the i -th Alternative, the negative properties (low effectiveness index), which is A^- is shown.

$$A^+ = \{V_1^+, V_2^+, \dots, V_n^+\} = \{(\max V_{ij} | j \in I), (\min V_{ij} | j \in J)\}$$

$$A^- = \{V_1^-, V_2^-, \dots, V_n^-\} = \{(\min V_{ij} | j \in I), (\max V_{ij} | j \in J)\}$$

Here, I have the positive criteria and negative criteria relate J is. Since the parameters studied, positive aspects, the higher the value of this index is more the good idea will be more and more. In this mode the power wrote:

$$A^* = \left\{ \max_i v_{i1}, \max_i v_{i2}, \max_i v_{i3}, \max_i v_{i4}, \dots \right\}$$

$$A^* = \{0.22, 0.066, 0.038, 0.034, 0.021, 0.31, 0.49, 0.038, 0.057, 0.060, 0.053, 0.032, 0.083\}$$

$$A^- = \left\{ \min_i v_{i1}; \min_i v_{i2}; \min_i v_{i3}; \min_i v_{i4}, \dots \right\}$$

$$A^- = \{0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0\}$$

The fifth step is to calculate the distance indicators, the ideal concept of positive and negative;

In this step, the Euclidean distance of each option, or according to the type (positive or negative), and also the most ideal and non-ideal ideal answer, be calculated as follows: from the choice of i , the idea of positive A_i^+ , is calculated by the formula:

Equation (6)
$$d_i^+ = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^+)^2}$$

Similarly,, option of calculating the distance d_i^- , al-negative idea is this:

(7)
$$d_i^- = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^-)^2}$$

The sixth step is to calculate the relative closeness C_i^+ to A^+ ;

In this step, the coefficient is actually equal to the ratio between the positive ideal alternative ideas, (d^+), divided by the total distance of the A_i alternative ideas (negative), and the distance from the positive ideal alternative ideas, (d^-). The coefficient of C_i^+ Denoted and it is obtained:

Equation(8)
$$C_i^+ = \frac{d_i^-}{d_i^+ + d_i^-}$$

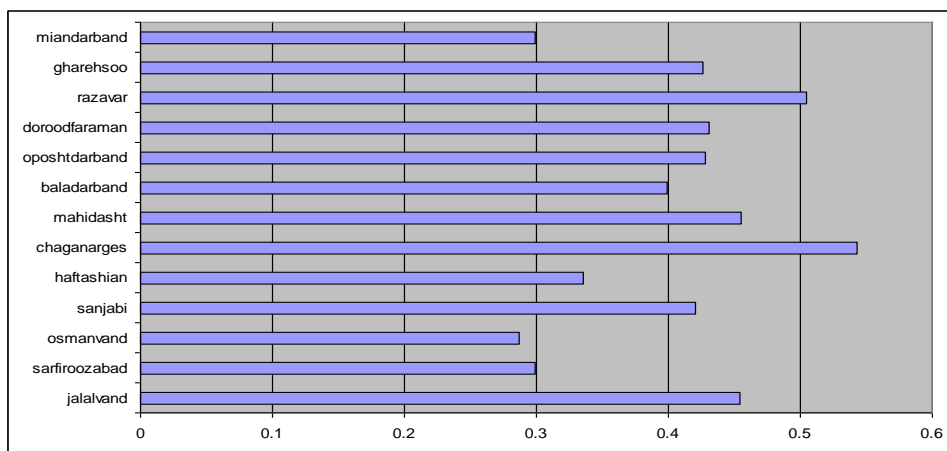
Can see is the same way, if $A_i = A^+$, when $C_i^+ = 1$, and if $A_i = A^-$, then $C_i^+ = 0$ (Table 5).

The seventh step, Rank factors classification (villages under study) based on the amount C_i^+ ; Varies C_i^+ between zero and one. When the C_i^+ is equal to a, represents the highest level, and when C_i^+ is equal to zero, the lowest rated show (Taherkhani, 2007). According to Table 4 and Figure 1, the highest C_i^+ Calculated Village Chaghanarges, by a factor of 0.542, to account for future planning is, and then Razavar, by a factor of 0.505 will be. Osman v and the efficacy of 0.287, the lowest rating in the rate of development, the city has had.

Table-5. Minimum and maximum distance measure for alternatives

village	Jalalvand	Sarfiroozabad	Osmanvand	Sanjabi	Haftashian	Chaghanarges	Mahidasht
d^+	0.0553645	0.1848370	0.1154765	0.083532	0.065198	0.1140249	0.106338
d^-	0.0460772	0.0789399	0.04654250	0.060642	0.032917	0.1353674	0.0886850
$d^+ + d^-$	0.1014418	0.2637769	0.1620190	0.144175	0.098116	0.2493924	0.195023
c^+	0.4542237	0.2992676	0.2872656	0.420618	0.335495	0.5427889	0.454739
village	Baladarband	Poshtdarband	Doroodfaraman	Razavar	Qarehsoo	Miandarband	
d^+	0.0967408	0.1367921	0.1422121	0.115868	0.081057	0.2366033	
d^-	0.0642261	0.1022493	0.1075204	0.118274	0.060285	0.1010684	
$d^+ + d^-$	0.1609669	0.2390414	0.2497326	0.234143	0.141342	0.337671	
c^+	0.399001	0.42774730	0.4305421	0.505138	0.426517	0.2993098	

Figure-1. Packing villages of the Kermanshah district priority status



7. RESULTS

One of the most interesting topics in today's world, rural development, and strive to create favorable environmental conditions, is rural. To determine the extent to villages and rural development involving the various operating parameters, are studied and analyzed. The study also aimed at assessing rural development in Kermanshah district, based on the level of facilities and services provided to them from the water to the bank, based on TOPSIS model, to achieve a comprehensive vision, as well as future planning, to provide services to the rural villages, the city, has been developed. According to the survey, it was observed that, in the villages of Kermanshah district, based on development, so the categories were: (Chaghanarges, Razavar, Jalalvand, Mahidasht, Doroodfaraman, Qarehsoo, Sanjabi, Poshtdarband, Baladarband, Haftashian, Sarfiroozabad and Osmanvand). So Chaghanarges district, the most developed villages (by a factor

of 0.542), and the District Osmanvand, lowest (by a factor of 0.287), which is for further study, and also to find the reasons for this difference requires research is more academic, this study only as a way to plan ahead is.

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