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Original article

Determine the level of development in the districts of Kurdistan province

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ABSTRACT

One of the fundamental indicators of development, providing services to various segments of society are. According to the well-being of people through the distribution of income, wealth and other variables, the main topics of economics, in the last two centuries has been the one of the important objectives of any economic policy, promote the general Welfare, and the indicate poor welfare society. In this study, two indicators, factor analysis, and distance methods (cluster), to determine the level of development, the districts of Kurdistan, has been used , therefore , to draw the matrix have different services, districts of Kurdistan province, was discussed. Therefore, the formation of the matrix, a matrix with 16 columns, including indicators, and 9 rows, including the districts studied, is. The results were based on factor analysis, and the integration of the district of Sanandaj, most developed, and the district of Divandareh and Bane, below most developed district, said. Based on a distance method, the district of Sanandaj, most developed, and the district Bane and Saqez, less than most developed district, are. The district (Bijar, Divandareh, Marivan, Ghorveh and Kamyaranan), less developed, and the district Sarvabad developing is. The results of the comparison indices also showed that , of the nine district Kurdistan, 5 district, in terms of development status, the same status, have been. Therefore, the district of Sanandaj, most developed, and the district Bane, than the most developed

district in Kurdistan are.

1. Introduction

Term development of the natural sciences was extracted at first, and as a biological sequence changes , a grain and seed, the flower was used. In lexical semantics , word expansion, this is a hidden application, and a means to get out of cover and padding , or the manifestation of all that there is potentially something , or the development of an organism, the type and simply state the type and condition of fuller, higher, more complex level of maturity and sophistication (Rigged fred, 1984). Studies on the development, has a long history, dating back mostly to the 1950s , therefore, is a life half century (Elliott, 1994). In today's world, the development will become a movement sweeping the world and is often called for governments and all nations are developed , but the means of development, these are very different. Affairs of everyday living , to graduate from poverty to improving access to basic social and economic services, as well as continuous improvement and continuous improvement of quality of life , fit into this category (Naqdi and Sadeghi, 2006). Develop the means to slow the body economic, social , cultural and political power at the national level and continuing it is. In the development process of talent at all levels and dimensions , fertilized and thrive. The development process is time consuming , and the long-term trend (AbshahiSoltaniar, 2004). Accordingly, the development of the theoretical aspects , such as Mast, a land of individuals and social groups are able to determine their own destiny , and their national targets , informed choice, based on their facility, prior to use, without although their relations with problems such crises, exploitation, domination and dependence are encountered (encyclopedia of urban and Rural management, 2008). In the meantime, one of the key indicators to determine the extent of development , providing services to various segments of society are . According to the well-being of people through the distribution of income, wealth and other variables , the main topics of economics , in the last two centuries has been, since one of the important objectives of any economic policy, promote the general Welfare , and specifically increase the welfare of the poor community (Provincer of Isfahan, 2010). In this research , the importance of service delivery, reduce social conflict, to determine the level of development of the district , Kurdistan province, according to various indicators of development and services has been discussed.

2. History

In determining the level of development, and the development and review of inequalities between them, research has been done in foreign studies, can be part of the Noorbakhsh Study (2003), entitled Human Development , and regional differences in India cited the disparities between the states of India, was studied. Badri and Moosavi (2010) analyzed the level of development , rural areas Kamyaranan district , presented the results of this study showed that the rate of development between rural Kamyaranan is different and there are many differences and inequalities of the seven districts of the district, a district developed five districts in developing and underdeveloped villages . The farmer, in considering the degree of development of Azerbaijani cities , in the period 65-55, concludes that the improvement of development in urban areas than rural areas , and the gap between the developed cities of the province, is very high. Bahatya and Rai (2004), using 23 indicators, with the help of factor analysis and numerical taxonomy , to determine the level of block 380, the 32 points of India, have been in 2001. In this study , a total of 32 indicators of the level of blocks was set as 43 blocks , extended, 187 block, moderately developed, 118 block, less developed and 32 undeveloped blocks, were identified . Then again , with 12 indicators relating to agriculture sector in terms of development, have been ranked. Fetros and Beheshtifar (2009), to compare the degree of development of agricultural provinces in two sections in 1994 and 2004, with factor analysis and numerical hypnoid Taksv issues and the results show that the level of agricultural development, during the study, the average increase, and agricultural dichotomy

between them is reduced. Kanani and Bardi Ana Moradnejad (2010), to determine the level of development in rural areas of the province , have numerical taxonomy index, the results indicate that the greatest amount of benefit villages in the district, the sari is. Karimi and Armesh (2011), the spatial analysis of rural tourism , taking advantage of component -based and distance , in the district of Jabal (mountain area - Isfahan Province), which will be based on the area 's tourism district of Jabal into 4 separate will.

3. Materials and Methods

In this study, we first mapped to a matrix, various district services in Kurdistan, was discussed. Therefore, the matrix, the service was set up, which is a matrix with 16 columns, including indicators, and 9 rows, including the district under study (Table 1). Then, using a method based components, hierarchical cluster analysis, entitlement services, districts of Kurdistan, was graded.

4. Results and discussion

4.1. Component analysis based

In the factor analysis, we standardized the data and then using the correlation method, and Varymks rotation, the analysis has been done. The analysis carried out showed that 4 factors, about 90.23% of the cumulative variance, is explained. Factor analysis model is as follows:

$$X_1 - \mu_1 = \ell_{11} f_1 + \ell_{12} f_2 + \ldots \ell_{1m} f_m + \varepsilon_1$$

$$X_2 - \mu_2 = \ell_{21} f_1 + \ell_{X_1,\ldots,X_n 22} f_2 + \ldots \ell_{2m} f_m + \varepsilon_2$$

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$$X_p - \mu_p = \ell_{p1} f_1 + \ell_{p2} f_2 + \ldots \ell_{pm} f_m + \varepsilon$$

Observable random vector X, with p components, with mean μ, and the covariance matrix Σ. Factor model, it is assumed that, X-linked, linear, random variables, invisible F1, F2, ... Fm,

which they called a common factor, and p additional sources of variables ε1, ε2, ε3, ..., εp are that errors or specific factors, (Specific Factor) are called.

In Table 2, the values of loadings and variance explained by four factors without rotation, and the rotation is shown.

Table (3), the load factor of each service indicators , the factors shaping the show. According to this table, the four factors above, according to the loadings of each variable, as the following, are named.

The first factor: the ratio of the number of high school and conservatory to population The second factor: the urbanization rate

The third factor: the ratio of the number of rural cooperatives to population

The fourth factor: the ratio of the post office villages are to a number of rural

Variable loads , indicate that, in proportion Library, populated places, and away from the district center, the capital of the province , the highest weight in the proportion of high school and conservatory, to the population , have enjoyed . Second , the combination of literacy rate, and per capita income municipalities , respectively. The third factor, sporting facilities to the population , had the greatest time, and the fourth factor , the number of medical facilities to the population, the highest weight, enjoy. (Table 3).

According to Table (4) , the district (Sanandaj and Qorveh), maximum weight, and the district (Bane and Bijar) , minimum weight , the ratio of the number of high school, are entitled to the population (Figure 1). The district (Bijar and Sanandaj) , maximum weight, and the district (Diwandareh and Sarvabad) , minimum weight, at the rate of urbanization accounted for (figure 2). The district (Sarvabad and Bijar) , maximum weight, and the district (Saqez and Bane), minimum weight , the proportion cooperatives in rural population, enjoy (Figure 3). The district (Sarvabad and Sanandaj) , maximum weight, and the district

(Qorveh and Bijar), minimum weight , the proportion of the benefit of any village post office to number of villages have been (Figure 4).

Table 1
Matrix indicators , and study areas.

Index	Rate of Unemployment	Rate of Illiteracy	Health centers to number of populated places	Physician to populated places	School to populated places	Secondary and technical schools to populated places	Library to populated places	Sports facility to populated places
Bane	-13.1	-23.47	0.38	0.07	0.33	0.17	0	0.02
Bijar	-8.51	-24.81	0.52	0.05	0.36	0.17	0.01	0.03
Diwandareh	-30.23	-28.22	0.48	0.05	0.6	0.25	0.01	0.02
Sarvabad	-30.95	-30.71	0.82	0.15	1.03	0.5	0.01	0.01
Saqez	-24.21	-23.28	0.46	0.15	0.42	0.23	0.01	0.01
Sanandaj	-23.13	-17.85	0.63	0.24	1.08	0.98	0.02	0.06
Qorveh	-15.95	-24.31	0.54	0.11	0.7	0.5	0.01	0.03
Kamyaranan	-24.74	-24.51	0.49	0.12	0.49	0.36	0.01	0.02
Marivan	-15.04	-21.65	0.48	0.09	0.65	0.3	0.01	0.02
Index	Villages will benefit from the gasto number of villages	The village benefited from the post office to number of villages	Proportion cooperatives to number of villages	Rate of proportion of villages with water to number of villages	Municipal income	Per capita tax	Urbanization rate	Distance from the district center, the center
Bane	0	0.02	0.06	0.69	126365	78986	0.63	-249
Bijar	0	0.02	0.18	0.82	211084	330937	0.53	-142
Diwandareh	0.01	0.01	0.08	0.86	97561	119331	0.3	-95
Sarvabad	0	0.08	0.23	0.94	82447	2601	0.08	-92
Saqez	0	0.04	0.07	0.83	134341	88204	0.65	-194
Sanandaj	0.04	0.03	0.17	0.87	168629	447958	0.76	0
Qorveh	0.03	0.02	0.17	0.97	143317	143951	0.51	-87
Kamyaranan	0.01	0.06	0.11	0.88	89887	165379	0.48	-64
Marivan	0	0.01	0.14	0.88	127539	68855	0.61	-126

Source: (Governor of Isfahan, 2008).

Table 2
the total variance, and factor loadings explained by factor (Authors, 2010).

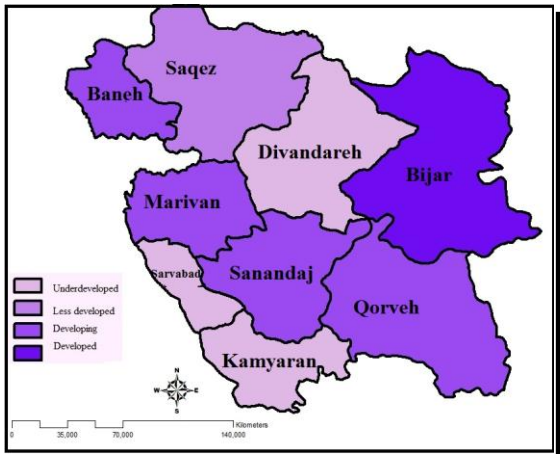
Components	Load Factor	Diffraction	Cumulative diffraction	Loadings with the rotations	Scattering with spin	Cumulative scattering with spin
The first factor	6.948	43.426	43.426	5.903	36.896	36.896
The second factor	4.966	31.039	74.465	3.381	21.128	58.025
The third factor	1.533	9.579	84.044	3.327	20.791	78.816
The fourth factor	.990	6.188	90.232	1.827	11.416	90.232

Table 3
the elements of the civil service, the rotation Kovarimax (Authors , 2010).

Index	The first factor	The second factor	The third factor	The fourth factor
Rate of Unemployment	-0.32274	0.698785	0.527114	0.149969
Rate of Illiteracy	0.31799	0.847134	-0.26977	0.158178
Health centers to number of populated places	0.674458	-0.6152	0.280985	0.253298
Physician to populated places	0.801951	0.014238	-0.40244	0.410304
School to populated places	0.868326	-0.34035	-0.03544	0.025348
Secondary and technical schools to populated places	0.958102	0.075207	-0.17434	0.072055
Libraryto populated places	0.899543	0.116383	-0.02239	-0.10394
Sports facility to populated places	0.718005	0.635889	0.056833	-0.07685
Villages will benefit from the gas to number of villages	0.793359	0.337057	-0.16103	-0.30279
The village benefited from the post office to number of villages	0.261411	-0.70637	-0.127	0.527585
Proportion cooperatives to number of villages	0.639397	-0.31907	0.656137	0.182911
Rate of proportion of villages with water to number of villages	0.616269	-0.48209	0.215151	-0.34207
Municipal income	0.147431	0.76842	0.535174	0.170478
Per capita tax	0.585388	0.668038	0.174565	0.016127
Urbanization rate	0.048018	0.918664	-0.26451	0.176511
Distance from the district center, the center	0.891713	-0.12138	0.00755	-0.32638

Table 4
loadings on rotated Kovarimax study areas (authors, 2010).

	Secondary and technical schools to populated places	Urbanization rate	Villages will benefit from the gas to number of villages	The village benefited from the post office to number of villages
Bane	-1.27827	0.32816	-1.32986	0.25633
Bijar	-0.76129	1.94242	0.92539	-0.54337
Diwandareh	0.29241	-1.34307	-0.0648	-1.6737
Sarvabad	-0.48151	-0.94707	1.87468	1.42385
Saqez	-0.5535	-0.30892	-1.07202	0.83286
Sanandaj	2.17323	0.78	-0.46659	0.95076
Qorveh	0.63349	0.15803	0.59341	-0.96961
Kamyaranan	0.12594	-0.80675	-0.35566	0.20369
Marivan	-0.1505	0.19721	-0.10456	-0.48082



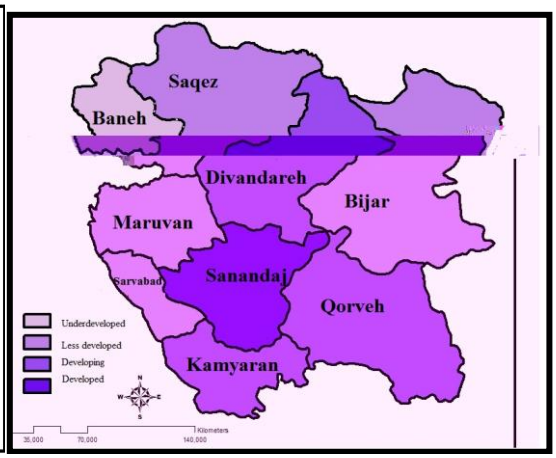
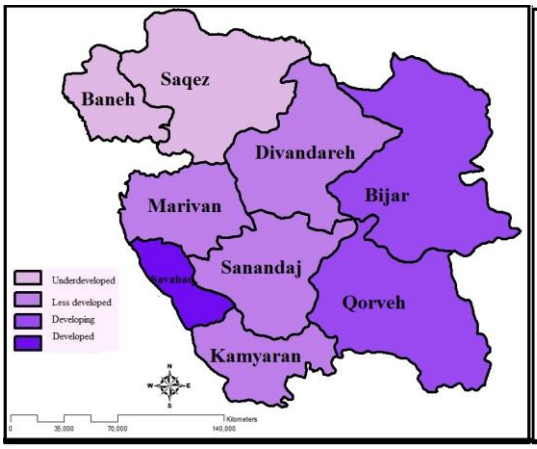


Fig. 2. development, based on the second factor. **Fig. 1.** development, based on the first



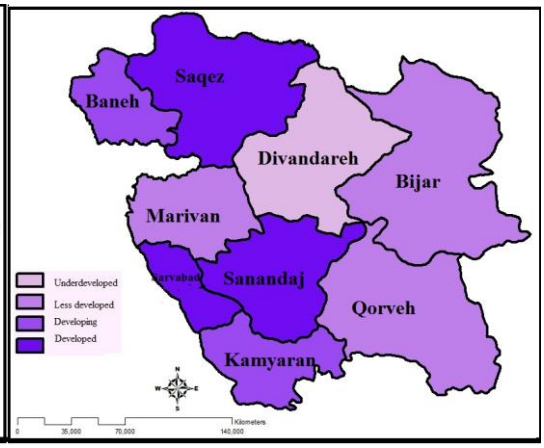


Fig. 4. development, based on the fourth factor. **Fig. 3.** development, based on the third factor.

Determine the level of development, the districts of Kurdistan, based on factor analysis. The accumulation of 4-fold, in GIS, level of development, the districts of Kurdistan, was determined (Fig. 5).

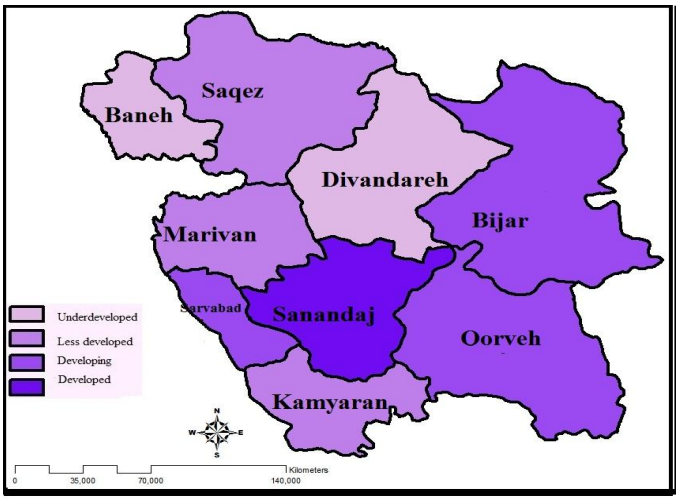


Fig. 5. determine the level of development , the districts of Kurdistan province.

According to the figure , it is observed that , on the basis of factor analysis , and integration factors

obtained, the most developed district of Sanandaj , and the district of Divandareh and Bane, less developed , most are district .

4.2. Agap analysis

At a distance method , parameters are grouped according to the distance between them is done. The views, or components from each other a distance less that a group can be .

"Cluster analysis , to reduce the dimension of variables, the most widely used . The real value of this approach when it becomes clear that we want a large matrix of data, we analyzed »(yarnal, 1993, 75).

In this grouping, threads within a group, very similar , with each other , but no significant differences with other groups , they Kalantari , 2010). Segmentation process , using cluster analysis , is as follows (Ishmaelnejad, 2005).

A) the provision of raw matrix data.

B) determine the score of each station using factor analysis .

C) integration, the minimum variance method (Ward's method), and determine the final grouping .

D) Finally, Dendrogram drawn , the result of merging groups, in several stages , the greater the internal correlation between variables is closer, a number of factors emerged, will be lower.

To determine the distance between clusters, the method has been used. Clustering process , all the observations in proportion to their distance , can be grouped . That is , the observations together , and then the next nearest clusters , are merged . Beginning of the clustering process, the number of observations , there is a cluster , and the last step, all observations are gathered in a cluster (Alijani, 2002).

Finally, Dendrogram resulting from a gap analysis , in Figure 7 , is shown:

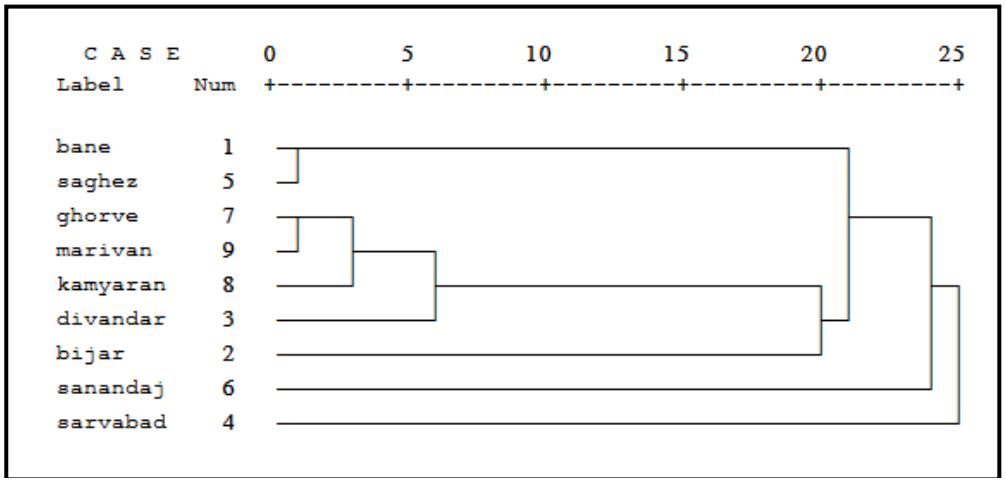


Fig. 6. tree clustering , development, district of the province of Kurdistan (Authors , 2010).

According to the diagram , the cluster was determined (Figure 7) , the districts of Kurdistan province , in terms of development indicators , considered the 4th District are divided . Sanandaj district , alone in a cluster, is located on top of the load factor, the number of high school and conservatory, to the population , causing it to separate from the rest of the district, is . Sarvabad district , due to the high load factor, the proportion of rural cooperatives , the population , and the proportion of villages are , however , a post office , a number of villages , alone, in a cluster, is located. District of Bane and Saqez, in a cluster, have been due to high load factors than villages benefited from the post office , however , the number of village is. The district Qorveh , Marivan , Kamyaranan and Diwandareh , due to high load factors, urbanization rate , are located in a cluster (Figure 7).

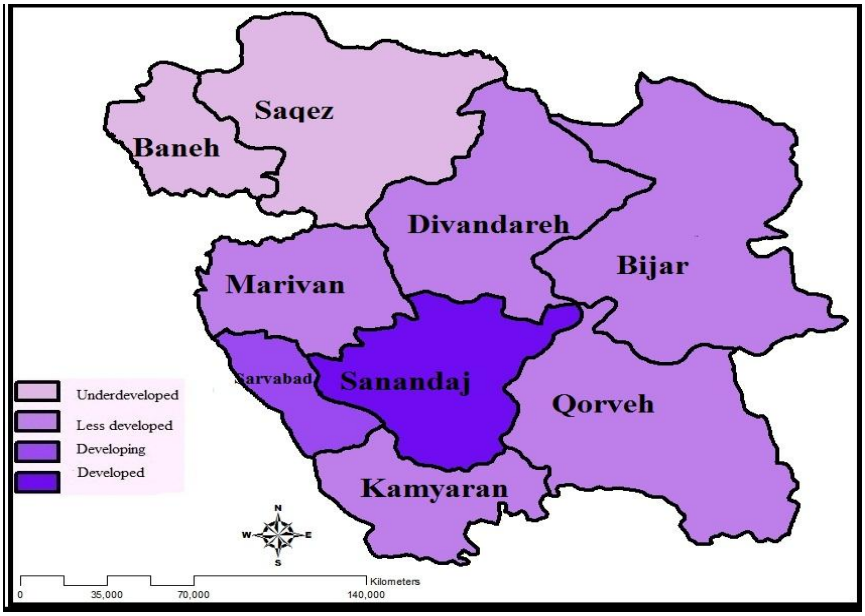


Fig. 7. The rate of development, the districts of Kurdistan province, based on the cluster model.

According to Figure 7, can be seen in the district of Sanandaj, most developed, and the district Bane and Saqez, below most developed district , are. The district (Bijar , Divandareh , Marivan , Ghorveh and Kamyaran), less developed, and the district Sarvabad is developing .

4.3. Comparing the results from both indexes

Comparing the results of the two indices indicate that both indices, the district of Sanandaj , most developed, and the district Bane, less developed, most are. Table 5 compares the results of two models, has been provided.

Table 5
Results of the two indices.

The rate of development	Factor Analysis	Cluster
Developed	Sanandaj	Sanandaj
Developing	Sarvabad ، Ghorveh , Bijar	Sarvabad
Less developed	Marivan ، Saqez , Kamyaran	Divandareh Bijar ، Marivan, Ghorveh, Kamyaran
Underdeveloped	Baneh , Divandareh	Baneh , Saqez

Comparison of two indicators had suggested that the ninth district in Kurdistan province , the fifth district to the status of development, in the same place , are located . Therefore, the district of Sanandaj , most developed , and the district Bane, less than most developed district, Kurdistan province , are. Sanandaj district , due to the central location , and benefit from the various features in the extended position , and the district Bane, because the distance from the center, and a high percentage of rural population in less developed place is located.

In this study , the index factor analysis to determine the level of development , the districts of Kurdistan, was enjoying . The analysis carried out showed that 4 factors, about 23/90 % of the cumulative variance explained has, which are as follows:

The first factor: the ratio of the number of high school and conservatory to population

The second factor : the urbanization rate

The third factor: the ratio of the number of rural cooperatives to population

The fourth factor: the ratio of the post office villages are to a number of rural

Variable loads, indicate that , in proportion Library, populated places , and away from the district center, the capital of the province , the highest weight in the proportion of high school and conservatory, to the population, have enjoyed . Second , the combination of , the illiteracy rate , and per capita income municipalities, respectively. The third factor , sports facilities , and populated places, most times , is , and the fourth factor , the number of medical facilities to the population, the highest weight, enjoy .

On the basis of factor analysis and aggregation, resulting in Sanandaj district , most developed, and the district of Divandareh and Bane, less than most developed district , said. According to the method, distance, district, Kurdistan province, in terms of development indicators, considered in four areas, are divided. Sanandaj district , alone in a cluster, is located on top of the load factor and the number of high school to the population , causing it to separate from the rest of the district, is . Sarvabad district , due to the high load factor, the proportion of rural cooperatives , the population, and the proportion of villages benefited from the post office, however , the number of villages, alone in a cluster, is located. Bane and the district of Saqez, in a cluster, have been due to the overload factor than any villages benefited from the post office, the number of villages. The district Qorveh, Marivan, Diwandareh Kamyaranan and also due to high load factors, urbanization rate , in a cluster, are located . Therefore, the district of Sanandaj, most developed , and the district Bane and Saqez, less than most developed district, are. The district (Bijar, Divandareh, Marivan, Ghorveh and Kamyaran), less developed, and the district Sarvabad is developing.
The results of the comparison indices indicate that, of the nine district Kurdistan, 5 district, in terms of development status, in the same place, are located. Therefore, the district of Sanandaj , most developed , and the district Bane, than the most developed district in Kurdistan are.

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