

SPATIAL ANALYSIS AND ASSESSMENT OF DEVELOPMENT INDICATORS IN KOHKILUYEH & BOYERAHMAD TOWNS USING THE FACTOR ANALYSIS AND CLUSTER TECHNIQUE

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Abstract

The talents understand and abilities of areas and planning to strengthen the comparative advantages based on capabilities causes the regional balance. This study has tried to use a system of factor analysis and cluster techniques to show imbalance and the gap between townships. This study helps to identify develop strategies for sectors, regions and townships and with strategic priorities, goals to be achieved. In this paper, the 33 indicators of educational, cultural, economic, infrastructure, health and population are studied then using factor analysis is reduced to six factors. Finally, townships using cluster techniques are divided into four homogeneous categories. Indicators were calculated using above techniques in software SPSS and then is calculated and analyzed degree of development and townships Inequality. The results show the development of the towns is quite unequal. Boyerahmad Township because of administrative - political centralism, And Gachsaran because of having oil has better condition in these indicators. Townships of Kohkiloye, Cheram, and Dena located in moderate level and Landeh, Bahmaei and Bashet located in deprived level.

Keywords: Development indicators, factor analysis System, cluster techniques, Kohgiluyeh & Boyerahmad

1-Introduction

Development literally means the gradual growth of becoming more advanced, stronger, and even getting bigger. (Oxford Dictionary 2001). Development process which varies in its reorganization of the economic system - with its social. In addition to improving productivity and earnings development and it is, involves a fundamental change in the construction of institutional, social, administrative and public attitudes and perspectives. (Ziyari, 1381). Nowadays, people consider the concept development process and also to improve all aspects of people's lives in a society. Developing and developed world become almost second half of the 20th century, due to the interrelatedness of various aspects of economic, social, political and cultural importance of an integrated approach to this issue has caused. There is no consensus among experts about these concepts, and it fits any views, opinions and beliefs have been defined. Intentional and deliberate efforts by the government to develop a comprehensive regional plan to double its necessity. (Potter, J, F.1997). This study aimed to assess the state of development Kohgiluyeh County and the grading and level of their after introducing and

measuring indicators of the operating system and clustering techniques are used. Studying and understanding the development indices in addition to other cities and provinces, especially because of the economic aspects of authoritative knowledge of the potential and shortcomings and weaknesses, and eventually planned to be consistent and logical.

2- Research Objectives

- Spatial Analysis kohgiluyeh province in terms of development indices
- Trying to improve the problems of other cities have
- Determine the level of Enjoyment County using factor analysis and cluster

3- Methods

In this study, a combination of documents, a field with little-analytic approach is used. The analysis of the economic, cultural, social, educational, infrastructure etc. to the province level indicators discussed. Using a factor analysis, statistical analysis, and has ... to six the number of loss we have. This study also uses a clustering technique based on the homogeneity of the explanatory variables and grouping them in a proper manner is. For more accurate results and spatial analysis was done using SPSS software.

4- The Case study

Kohgiluyeh & Boyer-Ahmad is one of the provinces of Iran. Yasouj center and with an area of 249 square kilometers 16Hzar land is mountainous and relatively high. Kohgiluyeh & Boyer-Ahmad population census by Statistics Center of Iran in 1390, equivalent to 50 percent of the 640,000 people who live in cities. The province is divided into seven city and 16 of 16 cities and more than 1,700 are rural. This small country in terms of population and land area of the province and is ranked 28th in both cases is between thirty provinces. The largest and most populous city of the province, city center Boyer is Yasouj. Research the companies barking the orders General Council of 89 expert researchers did Based on a field survey and a statistical population of 288 inhabitants of the city, and about 1,400 villages across the country, Percentage of minorities who were sampled in the survey were as follows in kohgiluyeh: 3.6 Fars fifth tu unanswered were 90.6 and 0.7 lor.



5- Factor analysis

Factor analysis and statistical modeling is a powerful technique that has many applications in various fields. (Klein, 1380), we suppose a few of the concepts are not observed for the correlation between the number of observed variables, are responsible. Factor analysis assumes that the variance of each of the two parts is obtained; a public area with other variables that cause correlation among them is common the unique part that is different from the other variables. Common parts are called factors and invisible concepts represents. (Wang, 2001) Factor analysis is a technique to reduce the large number of interdependent variables a smaller number of hidden and latent dimensions possible. The underlying assumption of factor analysis is that the underlying operating variables can be used to explain complex phenomena And correlations between variables, the result of their participation in the observables agents and diagnostic agents based on a set of observed variables is allowed. (Hekmatnia-Mousavi, 1390). The main objective of factor analysis is the summarization of a large number of variables and a limited number of factors. So we have the least amount of data loss. Wider access to a wide range of variables that are hidden in there, but it is not easily visible and devised a way to combine a large number of people in different groups of important applications of this technique in analyzing the data. This technique not only saves but also a scientific researcher using the index touches the and complex set of data to reduce the number of factors (Goldsmith, 1380).

6- Indicators

The key steps in such research, development indices are selected. Set of indicators is an important step in the study of regional development and the expression of statistical phenomena in the area. (Kalantari, 1380). To express the importance of statistical indicators of development and its role in the expression of these phenomena is essential concepts of variables to be examined in greater depth. The raw numbers are variables that can measure the level of development in selected areas of work. (Nasrollahi - Akbari, 1390). Indicators will enable planners to assess the status of research and analyzes well placed And its distance from the ideal situation are examined.

Table 1: Operating and indicators used in the study

Operating (core)	The following indicators
Economic factors	1. Percent of workers in the manufacturing sector relative to total employment 2. Percent of workers in the transport sector to the total employment 3. Percent of workers in the education sector to the total employment 4. Percent of workers in the health sector relative to total employment 5. Unemployment 6. Ratio of total employment
The underlying cause	7. The number of travel agencies 8. Proportion of households with cars 9. Telephone subscribers per household 10. Number of cities 11. The use of petroleum products
Operating	12. Proportion of the student population over six years. 13. Teacher ratio
Health Factor - Health	14. The number of hospital beds per 10 thousand 15. Number of GPs 16. Number of specialist 17. Number of pharmacies 18. Number of laboratories 19. The number of imaging centers
Cultural factors - social	20. Percent literacy

	21. Number of Libraries 22. The number of mosques 23. Number of cinemas 24. Of urbanization 25. Students 26. Than theological seminaries 27. Number of universities 28. Proportion of graduates 29. Sporting Venues
The population and employment	30. Proportion of the economically active population 31. Mortality 32. Relative density of population 33. Migration of appetite

Source: author

7- Cluster Analysis

This technique is widely used techniques in the study of regional geography. (Hekmatnia, Mousavi, 1390). The way to level areas, towns, villages and places it on the level of a surface similar to each other but significantly different from that of other places. Hierarchical cluster analysis to cluster and non-cluster hierarchy are the first type used in geographical studies. (Hekmatnia, Mousavi, 1390). Cluster analysis enables the researcher based on the homogeneity of the topics under study, and to classify them into appropriate ways to interpret the results. (Kalantari, 1385, p 229). The hierarchical clustering tree density and resolution is done in two ways. The method used in this study, each with its own separate cluster begins, In each stage, some issues are combined with the new clusters set In each stage, the number of clusters is reduced by one. Gradually all the places with each other and eventually merge to create a single large cluster. (Hekmatnia, Mousavi, 1390).

8-Results and Discussion

8-1-The factor analysis

- 1- The matrix consists of data: data matrix is a matrix whose columns and rows that include the cities will be included.

Table 2: Data matrix for the County (1392)

Indicators	Boyerahmad	Kohgilouyeh	Gachsaran	Bashet	Bahmaei	Dena	Lande	Cheram
1	0/45	0/27	0/23	-	0/33	0/26	-	-
2	0/21	0/18	0/14	0/10	0/7	0/8	0/6	0/9
3	1/47	1/55	0/96	1/68	1/73	1/19	-	1/28
4	1/39	1/12	1/30	0/46	1/73	1/19	-	0/42
5	3/90	5/51	9/11	-	5/42	6/69	-	-
6	22/49	25/47	24/02	-	16/49	22/93	-	-
7	25	16	12	5	5	5	3	4
8	34	29	31/5	26	29/17	31/2	25/25	29/5
9	76	74	78	53	43	38	37	47
10	4	3	1	1	1	3	1	1
11	66/09	38/43	89/6	49/66	36/45	23/36	-	32/09
12	28/7	21/84	33/29	30/61	21/15	25/14	-	23/12
13	1/25	1/32	0/81	1/21	1/54	1/2	-	1/01
14	150	105	130	10	8	5	4	3
15	76	47	19	-	9	19	-	8
16	77	32	31	-	-	4	-	-
17	35	12	15	3	2	3	-	1
18	54	18	11	1	5	4	-	1

19	11	3	3	5	1	2	-	1
20	79/36	76/32	84/91	85/62	84/40	91/64	85/43	86/21
21	15	11	8	4	6	5	-	4
22	36	25	15	6	9	5	4	5
23	1	1	2	-		-	-	-
24	51	54	77	46	46	22	-	39
25	25/7	18/45	29/75	27/54	18/5	23/17	-	20/19
26	1/8	2/1	0/75	0/45	0/26	0/17	0/16	0/17
27	11	3	5	1	2	1	-	1
28	24/5	17/37	29/2	26/65	17/25	23/26	-	19/75
29	15	5	8	2	4	4	3	3
30	59/99	60	59/99	59/99	59/99	60/01	59/99	59/99
31	0/94	0/79	0/66	-	0/37	1/17	-	-
32	41	49	45	39	38	39	39	40
33	25/18	22/54	23/34	1/78	18/18	13/47	-	-

Calculate the correlation matrix for the calculation of the next steps and the interrelationships between the indicators used in the correlation matrix. If all indicators are arranged in the positive direction and the quality is much better indicator, correlations will be positive. Values increase with increasing amounts of each indicator will be other indicators. (Hekmatnia, Mousavi, 1390).

8-2- Mining factor

Factor using the correlation matrix between indices obtained. At this stage to get the infrastructure that will be attempted using SPSS variable changes. The factor loadings of each variable is correlated with the amount of which varies between -1 and +2.

8-3- Rotational factor

List of Agents	Eigenvalue	Percentage of variance	Cumulative variance
1	23.2	52.2	54.1
2	3.958	11.234	59.534
3	3.784	7.243	66.352
4	3.021	5.635	71.238
5	2.986	8.563	65.345

If the amount loaded on the carrier or any of the big factors is positive or close to zero, in which case it will be interpreted by simple factors. If the values are the average values of each indicator loaded on several factors, the interpretation of the work will be hard. To achieve the optimum as the factors are applied to obtain a simple structure. (Hekmatnia, Mousavi, 1392).

List of Agents	Eigenvalue	Percentage of variance	% Of cumulative variance.
1	21.35	40.52	45.384
2	5.98	19.25	59.65
3	3.24	7.985	71.235
4	3.025	7.234	60.348
5	4.298	6.971	67.864

8-4- Operating Name

Ranking cities: cities ranking points for each factor those cities shall be calculated by determining the rankings.

• Economic factors

Row	Index	Solidarity
1	Percent of workers in the manufacturing sector relative to total	68.5

	employment	
2	Percent of workers in the transport sector to the total employment	85.2
3	Percent of workers in the education sector to the total employment	78.1
4	Percent of workers in the health sector relative to total employment	66.3
5	Unemployment	54.9
6	Ratio of total employment	67.8

• The underlying operating

Row	Index	Solidarity
1	The number of travel agencies	80.2
2	Proportion of households with cars	71.2
3	Telephone subscribers per household	64.5
4	Number of cities	76.2
5	The use of petroleum products	64.4

• Health Factor – Health

Row	Index	Solidarity
1	The number of hospital beds per 10 thousand	79.3
2	Number of GPs	85.5
3	Number of specialist	74.3
4	Number of pharmacies	67.3
5	Number of laboratories	56.3
6	The number of imaging centers	65.1

• Cultural– social factors

Row	Index	Solidarity
1	Percent literacy	55.2
2	Number of Libraries	75.7
3	The number of mosques	83.1
4	Number of cinemas	72.6
5	Of urbanization	63.9
6	Students	74.5
7	Than theological seminaries	67.7
8	Number of universities	84.2
9	Proportion of graduates	82.5
10	Sporting Venues	80.1

• Population and employment factors

Row	Index	Solidarity
1	Proportion of the economically active population	70.5
2	Mortality	78.9
3	Relative density of population	84.2
4	Migration of appetite	65.2

8-5- Application of cluster analysis in assessing the level of development of the Boyer Ahmad towns.

In the present study, after analyzing the factors influencing the development of factor analysis in the next step Using cluster analysis using the factors extracted In the earlier stages of the city in terms of development comprise the three categories, being somewhat deprived divided The following table shows the level of development of the city kohgiloyeh based on the indicators shown.

Level of development of the Kohgiloyeh,Boyerahmad towns		
Highest	The average development	The lowest level of development
Boyer city, city Kohkilouye, city gachsaran	Dena city, city Cheram	Landeh city, city Bahmaei, city Bashet

8-6- Conclusions

In this study, to determine the level of development of the city kohgiloyeh 33 different programs were implemented Using factor analysis of the six factors were significantly reduced The final parameters are extracted using a cluster analysis was performed in terms of the level of development in the city of the same five homogeneous clusters have been classified Using state of the facilities and services available in the city studied And finally the city of Kohkilouye, as the city has gachsaran city and Bahmaei, Bashet and Landeh city were excluded.

9- Resources

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