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A Brief Review of Land Surveys of Iran, by Descriptive and Inferential Analysis of Provincial Development Quality

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Abstract:
In today's word which its complexity is increasing day by day, having enough acquaintance of different areas causes informed and functional intervention and enhancements. To identify development and the lack of it in different regions, we need to evaluate the zonal disparities pattern and the difference between the regions, and assess the superiority of a location in compare of structural-similar places in the city. The aim of the essay is to deploy the mechanism of equal opportunities, and to achieve the level of provincial inequalities in the country through the investigated indicators. The research method is "descriptive and analytical", which quantitative modals are used to determine the development degree of Iran's provinces. 34 urban development indicators have been chosen, and by using factor analysis these indicators have been studied, which have been classified in 4 significant factors, and the provincial rankings are based on these 4 items. Also by using cluster analysis homogeneous states are set alongside each other and have the same level. The provinces are classified in 3 homogeneous clusters, deprived (level 3) (under developed), average development (level 2) (among development), and extended (level 1) (high developed).

Keywords: sustainable development, factor analysis, clustering, Province of Iran, land survey

Introduction:

Sustainable development is a widespread and complex phenomenon, that has influences on the growth and evolution of the cities, and it considers economic, social, ecological and environmental factors. What is important today is to be aware of the strengths and weaknesses of the economical, environmental, peripheral and ecological social dimensions, which can be a major reason to resolve the present insufficiency and difficulties due to reach economic welfare and social health, achieve sustainable development and ultimately social justice. In this context, urban planning programs in general, and sustainable urban development planning programs in particular, are up to discipline urban spaces, in terms of getting access to

urban features and utilities and to distribute different urban operations in a appropriate way. In other words, it seeks to provide the best living conditions and a proper relation between different operations for urban residents. Reducing poverty and inequalities, relying on the social justice principle and geographic equality is one of the main measures of sustainable developments. (RF: Hekmatniya and Mousavi / 1385 / 35)

This paper, first has a brief overview of the theoretical literature of sustainable developments, and after that by applying various economical, social and physical indicators and by using hierarchical cluster analysis method –which has the ability to cluster variables and different ways of it, and the ability to convert the variables and measuring the dissimilarity between clusters - , analysis the development of Iran's provinces, as the first step of land survey to achieve sustainable development.

1. Principles of research:

Having a strong theoretical principle is essential in any research; therefore some of the concept used in this study should be mentioned.

2. Land survey:

In Persian language survey means to adorn and adornment, and land survey is to plan the relationship between human and space, and the activities of human in space, in order to get a rational exploit of all the knowledge and experience possibilities during time. In fact, survey is to have a well-organized space due to reach comprehensive national goals and strategies, which is towards the realization of society's ideals. The purpose of this organization is to provide equity and justice in society, because survey is to supply human needs. This can include economic, political, social and cultural needs. The first idea of survey planning in Iran dates back to the mid-40s. In February 1967 a report was published by University Of Tehran's institute of social studies, entitled as The issue of population growth in Tehran and tips about countrywide civil. First step in land survey programming is to scientifically assess and identify the existing country's situation in different aspects such as distribution of resources, facilities and especially population and its properties. In this research we are going to analyze this point within available information by statistical analysis methods.

3. Sustainable development:

The concept of sustainable development in the current transforming environment (globalization, urbanization, scarce resources, innovation in technology, etc.) has become increasingly important. Its most common and acceptable definition has been pointed out in the 1987 report of the Environmental Development Commission:

Sustainable development is such that it addresses the current needs without diminishing the ability of the next generations to satisfy their own needs.

In the earth congress UNCED in 1992, 120 countries reached an agreement on making the global development in the twenty first century sustainable. In doing so, the key role was delegated to local organizations. Thus, substantial research and discussions were carried out in order to identify how sustainable development can be implemented at local level. "Canada

Urban Institute" believes that macro-social goals must entail the following properties regarding sustainability:

Valuing life quality: Local society will place emphasis on the fact that the initial objective of planning and the process of elevating life quality for its residents (in terms of society, economy and mental) and necessary attention to modern health and safety essentials.

Preserving heritages: A sustainable society values its cultural traditions such as rural parks, local churches, city public library and the high street. Any modernist movement should consider the society's historical and traditional past.

Elevating the diversity of values: A sustainable society implements policies about supporting diversity of human and animal being, which is paced with the social awareness growth.

Making technologies targeted: In an artificial environment rather than the technology becoming the aim, it should be a means to reach it. Innovation, particularly in communication technology, helps to aim social goals, which has linked people to institutions, resolved conflicts, and optimize present trading markets.

Being actively responsible: A sustainable society not only does reacts to conditions, it also takes measures against preventing threats to social welfare and maximizing opportunities. Practical knowledge and new scientific tools (satellite technology, geographical information systems, statistical dates, probabilities analysis, etc.) have played a role in emerging oceans of modern information (Moradi Masihi, 1381).

4. Sustainable Development Theory:

Stable or sustainable Development Theory is the result of discussion between the environmentalists about the environment issues especially the urban environment which was presented after the Sustainable Development Theory to protect the environment resources. In "Habitat II" conference in 1996 sustainable development was expanded in the whole world. In cities, the concept of stability and sustainable development is based on supporting the logic and the dimensions of ecology, economics, politics, society, culture and space and also the contrast between them.

In sustainable development, the extensive sense of the word "stability" means the ability of society and ecosystem or any other system, to function continuously in the infinite future, without going to waste under any pressure or in the result of the resources that system is relied on being consumed.

In "Camagni et al's (1998) opinion, coordinating the aspects of the quality of economic, social and environmental life, affects the Sustainable Development. Peter Hall has defined the Sustainable Development as following: "The Sustainable Development is a form of today's development that the ability of sustainable development needs identifying the constraints." In this theory the subject of the resources' maintenance for now and forever is proposed in the means of using the Earth efficiently and entering the wastage to the nonrenewable resources. (Blowers, 1994)

The Sustainable Development Theory suggests the subjects of preventing the urban, zonal and international environment's pollution, protecting of the tissue, not protecting the damaging expansions and destroying the gap between the rich and poor. It also says that the

way to achieve the goal is by the urban, rural, zonal and international planning that in the face of law, user control and the most of the control is in the cities and in towns. As a strategic perspective, this theory emphasizes the role of government in this planning and it believes that the government should protect the urban environment in any aspects possible. (Crark, 1992: 140-147) This theory studies the stability of city's form, sustainable residencies pattern, effective transport pattern in the context of using fuel and it also checks the city in the urban hierarchy.

The stability of the cities and towns' form consists of: reducing the pollution, maintaining the natural resources, decreasing the volume of urban wastage, increasing the recycling, reducing the consumption of energy, creating urban society and green areas, expansion of the small cities in order to decrease the reliance on big cities, reducing the communicational distances, creating local occupation, developing various houses in employment centers, balanced community, public transportation and reducing road traffics (Brchany, 1994: 46), managing not recyclable wastage, distributing resources and preparing stable local food. (Edward, 1991: 218-349)

In this way, first adopting right user policy and protecting the Earth will be increased with replacing resources and modernizing them, and second, according to the urban and zonal planning and organizing the space (Herbert, 1992: 181-177) sustainable development will be accomplished.

This theory says the way to achieve these patterns is by the urban, rural, zonal and international planning in line with law's role and user controls. This theory emphasizes the role of the government in this planning from the strategic point view and believes that the government should have a widespread protection on the urban environment. (Ziari and Mahdnejad, 425, 1388)

5. Sustainable development components:

Specified principles in sustainable urban development can be summarized as followed: saving energy, reducing the distance between home and work, reducing the use of cars for business trips, developing the public transportation network and pedestrian access, conservation of biodiversity and the culture of the city, one hundred percent recycling of waste and trash and reducing environmental pollution. (Rahnama, 2005, 357)

A neighborhood should be placed next to a public transportation route or next to a bus sub-path which has a 10 minute walking distance to the bus stop. Where creating public transport is not possible in a short period of time, land use and street patterns within a sustainable residential range should have the required proficiency to coordinate and temporary exchange with other neighboring areas. (Nooriya, 1987)

Thus a development is called sustainable when it meets the demands of the various stakeholders of the present and future generations and does so in three social, economical and environmental areas at the same time. (United Nations, 2006) Sustainable development goals are usually categorized in three economical, social and environmental areas and there are defined indicators to measure the development of these aspects. The social area considers measures that are in direct contact with humans and acts as an inhibitory or facilitator to

improve the process of life quality in communities. The economic domain observes the distribution and the use of limited resources needed to improve people's lives and finally the environmental field is related to the renewable and nonrenewable natural resources that forms humans living and working space.

Social goals, involves issues such as full employment, education, health, security, collaboration and ... In the economic field, such as growth, efficiency, stability and... are important. And healthy environment, rational use of natural resources and their protection are the environmental goals.

According to the Asian Productivity Organization sustainable development is a strategy to improve the social and economical efficiency, and its goal is to develop every aspect of environmental performance in line with continuously promoting the quality of human life. (APO, 2005)

According to the presented information the described variable with its related parameters is as follows:

- Education variable

The number of literate women, men with education, the number of people with primary education, the number of people with elementary education , people with secondary education, the number of pre-university educated people, the number of adult literacy, the number of illiterate people, the number of households with 2 persons educated.

- Economic Variables

The education sector staff, the building sector staff, the electricity, gas, steam and air conditioning supply staff, the number of independent employees, the number of skilled workers in agriculture, forestry and fishing, the active unemployed population, the agro-industrial sector staff, the number of immigrants arrived during the last 5 years to the other provinces.

- Skeletal variables

The number of housing units, the number of non-flat residential units built with steel structures, non-flat residential units made with concrete, non-flat residential units with area of 101 to 150 m, the number of housing units built of brick and wood or wood and stone.

- Infrastructural variables

The number of housing units with water, the number of housing units with electricity, the number of housing units with gas, the number of housing units telephone, electricity, water and gas, the number of housing units with public sewage network.

- Culture and Tourism Variables

The number of public libraries, the number of books in the art and cultural centers, the number of intramural programs of television stations, the number of intramural programs of radio stations .

- Treatment Variables

The number of health centers, the number of active health homes and the number of Health Institute related to the Department of health, treatment and medical education.

6. Population Community:

The population community is made of all the provinces of Iran. The main variables of the study are education, economics, skeletal, culture and tourism, infrastructural and treatment which are chosen to measure the development of Iranian provinces.

According to the ranking based on the factor analysis, indicators that are correlated with each other are summarized in one agent. If some of the parameters are highly correlated with each other, it is not a problem.

7. Study Area:

Iran with its long history of civilization in the area of Mesopotamia and Transoxiana is located in the heart of the famous Iranian plateau in the west side of the vast continent of Asia, in the area that is now known as the Middle East. Iran is located on the border between Asia and Europe and has been a linking bridge between East and West since long ago and is located in a region relative to the junction of the three continents, Europe, Asia and Africa. The History of human settlement in this region goes back to about twelve thousand years ago. And its civilization is more than seven thousand years old. And has held almost three thousand years of business management and administrative system experience. The culture of this land has had Significant contribution to, opening up new horizons of scientific and intellectual heritage to humanity. Iran, The origin of one of the oldest human civilizations, is a country with a privileged geographical position and rich natural resources. According to the latest country divisions Iran has 31 provinces.

Figure 1 – study area location

8. Research methodology:

In order to determine the development scales of Iran's provinces, thirty four urban development indicators have been chosen and with the use of the factor analysis method, these indicators have been analyzed, and have been categorized into four meaningful factors. These four factors have become the means of ranking the provinces. Furthermore, the cluster analysis of the equal provinces has been brought together side by side, in the same level.

9. Factor analysis:

Factor analysis is one of the multivariate methods in which itconcernsneither the independent nor the dependent variables; but it is defined as an interdependent technique and the whole variables are affiliated to one another. The fundamental dilemma is whether it is possible to convert the main variable with its tremendous amount of data, into a set of smaller variables with the least loss of information or not?

Therefore, one way to optimize the measurements is to use the factor analysis method. This method is based upon the relations among the variables and the scales which in fact are measurement tools. Generally, in several social science researches we encounter a huge mass of variables for a variety of reasons. For more accurate analysis of the data and achieving a scientific result, scientists are scouting to reduce the number of variables and to develop a new structure using the factor analysis method. The factor analysis method endeavors to identify the factors culminate in determining an appropriate paradigm for the variables. Being informed of the amount of correlation between these variables can be an initiative for statistic procedures of the factor analysis.

The existence of clusters of significant correlations in the correlation R matrix proposes that these subsets would probably concern further evaluations of psychological aspects or particular capabilities. The purpose of the factor analysis is to identify the unknown factors and to evaluate them.

The produced factors are mathematical expressions which could be realized as pivots to categorize the variables in a set. Hence, any justification factor is as same to an axis in a coordinate system in which each of the existing variables can be demonstrated as points in the space in that system.

10. Procedures of the factor analysis:

The factor analysis procedure generally takes place in three phases:

1. For all the variables, a correlation matrix will be constituted.
2. From the correlation matrix, the factors as the main components will be extracted.
3. The axis will be rotated until the correlation between the variables and some factors become maximized. The most common method in this stage is a method known as Varimax.

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Since the purpose of the factor analysis is to connect several variables to form one single factor, in the correlation matrix, these variables must have a correlation ratio more than 0.3.

11. Cluster analysis:

Clustering (cluster analysis) is considered for resolving a question by holding a sample of ***n*** observations and measuring ***p*** variables on each observation to make regimentations of observations (persons) into classes (clusters) in which the similar ones be grouped in the same class. This method must be entirely numerical and the classes must not be defined before.

12. The results:

A variable's subscription is a multiple correlation ratio for the concerned variables with the use of the factors as predictors. As the base pole of the subscription demonstrates the subscriptions before the extraction of the factors, all of the basic subscriptions are equal to 1. The more the values of the extracted subscriptions are, the better the extracted factors can indicate the variables. In the table below, all the extracted subscriptions of the variables are more than 0.5.

Table 1 - Correlation between parameters

Extracted subscription	Initial subscription	Variables
0.996	1.000	The number of literate women -1
0.995	1.000	The number of literate men -2
0.972	1.000	The number of people with primary education -3
0.993	1.000	The number of people with mid high school education -4
0.959	1.000	The number of people with high school education -5
0.967	1.000	The number of people with pre university education -6
0.917	1.000	The number of uneducated people -7
0.825	1.000	Number of adult literacy -8
0.930	1.000	Employees in electricity, gas, steam and air conditioning -9 sector
0.874	1.000	Active unemployed population -10
0.963	1.000	Building sector employees -11
0.795	1.000	Agro-industrial employees -12
0.913	1.000	Number of skilled workers in agriculture, forestry and -13 fishing
0.979	1.000	Independent Staff -14
0.989	1.000	Education sector employees -15
0.997	1.000	families with 2 educated people -16
0.847	1.000	Number of non-residential apartments built with steel -17 frame

0.740	1.000	Number of non-residential apartments built with concrete -18
0.723	1.000	The number of housing units built of brick and wood or -19 wood and stone
0.993	1.000	The number of housing units -20
0.798	1.000	The number of housing units connected to the public sewer -21 network
0.960	1.000	The number of housing units which have a telephone and -22 electricity, gas and water
0.993	1.000	The number of housing units that have electricity -23
0.994	1.000	The number of housing units that have water -24
0.969	1.000	The number of housing units that have gas -25
0.898	1.000	Number of non-residential apartment unit with an area of -26 .101 to 150 m
0.956	1.000	The number of immigrants arrived during the last 5 years in -27 other cities
0.910	1.000	The number of active health centers -28
0.872	1.000	The number of health centers -29
0.930	1.000	Number of health centers depending on The Ministry of -30 Health and Medical Education
0.865	1.000	The number of public libraries -31
0.712	1.000	Number of TV stations with inland broadcast -32
0.853	1.000	The number of available books on art and cultural centers -33
0.865	1.000	Number of radio stations with inland broadcast -34

The next stage is determining three values in which has been shown at table 1 of the factor analysis which are the special values, the special values of the extracted factors without rotation, and the special values of the rotated extracted factors.

In table 2, four factors contain special values beyond 1 and will stay in the analysis. These four factors could define approximately 91.004 percent of the factor's variance. Also in the method of rotating the factors the variance is about 91.003 percent. But each of the factors define an approximately equal proportion of the factors which is a feature of the Varimax rotation (it distributes the differences equally among the factors).

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Table 2 – determination of the values depending on the parameters (RF: author)

Indicators	Special contents			Special contents of extracted factors without rotation			Special contents of extracted factors with rotation		
	Total	% of Variance	Cumulative%	Total	% of Variance	Cumulative%	Total	% of Variance	Cumulative%
1	24.651	72.502	72.502	24.651	72.502	72.502	21.442	63.064	63.064
2	3.739	10.996	83.498	3.739	10.996	83.498	4.783	14.067	77.131
3	1.494	4.394	87.892	1.494	4.394	87.892	2.779	8.173	85.305
4	1.058	3.112	91.004	1.058	3.112	91.004	1.938	5.699	91.004
5	0.799	2.349	93.353						
6	0.630	1.852	95.205						
7	0.367	1.079	96.284						
8	0.292	0.858	97.142						
9	0.267	0.787	97.928						
10	0.168	0.493	98.422						
11	0.148	0.435	98.857						
12	0.100	0.295	99.152						
13	0.078	0.230	99.383						
14	0.055	0.163	99.545						
15	0.039	0.116	99.661						
16	0.033	0.096	99.757						
17	0.027	0.080	99.837						
18	0.021	0.063	99.900						
19	0.011	0.032	99.932						
20	0.007	0.021	99.954						
21	0.005	0.016	99.969						
22	0.004	0.012	99.981						
23	0.003	0.009	99.990						
24	0.002	0.005	99.995						
25	0.001	0.002	99.997						
26	0.001	0.002	99.998						
27	0.000	0/001	100.000						
28	8.685E-5	0.000	100.000						
29	5.762E-5	0.000	100.000						
30	8.670E-6	2.550E-5	100.000						

31	7.566E-16	2.225E-15	100.000						
32	1.404E-16	4.131E-16	100.000						
33	-5.277E-16	-1.552E-15	100.000						
34	-6.857E-16	-2.017E-15	100.000						

The rotated matrix of factors in table 3 demonstrates the factor loads of each variable in the factors which have been left after the rotation. The more the absolute value of this ratio, the factor concerning the factor's variance plays a more significant role.

Table 3 - rotated matrix of factors (RF: author)

Indicators	factors			
	1	2	3	4
The number of literate women	0.974	0.165	0.139	0.018
The number of literate men	0.978	0.145	0.134	0.003
The number of people with primary education	0.918	0.316	0.162	0.042
The number of people with mid high school education	0.956	0.219	0.177	0.004
The number of people with high school education	0.860	0.415	0.210	-0.065
The number of people with pre university education	0.939	0.180	0.218	0.068
The number of uneducated people	0.779	0.492	0.161	0.205
Number of adult literacy	0.694	0.529	0.251	-0.037
Employees in electricity, gas, steam and air conditioning sector	0.876	0.079	0.394	0.018
Active unemployed population	0.891	0.105	0.229	0.129
Building sector employees	0.890	0.344	0.209	-0.092
Agro-industrial employees	0.424	0.712	0.326	0.045
Number of skilled workers in agriculture, forestry and fishing	0.204	0.855	0.304	0.217
Independent Staff	0.835	0.501	0.167	0.059
Education sector employees	0.961	0.177	0.183	0.012
families with 2 educated people	0.978	0.171	0.101	-0.010
Number of non-residential apartments built with steel frame	0.852	0.216	-0.260	0.086
Number of non-residential apartments built with concrete	0.135	0.320	0.774	0.144
The number of housing units built of brick and wood or wood and stone	0.038	0.847	-0.051	0.036

The number of housing units	0.980	0.154	0.095	-0.008
The number of housing units connected to the public sewer network	0.852	0.114	0.144	0.198
The number of housing units which have a telephone and electricity, gas and water	0.975	0.075	0.050	-0.039
The number of housing units that have electricity	0.980	0.151	0.096	-0.010
The number of housing units that have water	0.983	0.136	0.096	-0.020
The number of housing units that have gas	0.978	0.084	0.052	-0.045
Number of non-residential apartment unit with an area of 101 to 150 m.	0.402	0.403	0.735	0.182
The number of immigrants arrived during the last 5 years in other cities	0.917	0.218	0.255	0.055
The number of active health centers	0.171	0.848	0.300	0.267
The number of health centers	0.885	0.181	0.224	0.076
Number of health centers depending on The Ministry of Health and Medical Education	0.798	0.327	0.368	0.227
The number of public libraries	0.699	0.254	0.502	0.241
Number of TV stations with inland broadcast	0.060	0.073	0.175	0.820
The number of available books on art and cultural centers	0.839	-0.002	0.303	0.227
Number of radio stations with inland broadcast	-0.053	0.281	0.047	0.884

Table 4 - Coefficient matrix of factor scores (RF: author)

Indicators	factors			
	1	2	3	4
The number of literate women	0.057	-0.028	-0.028	-0.003
The number of literate men	0.059	-0.027	-0.026	-0.009
The number of people with primary education	0.042	0.037	-0.042	-0.009
The number of people with mid high school education	0.049	-0.004	-0.006	-0.025
The number of people with high school education	0.024	0.083	0.000	-0.100
The number of people with pre university education	0.047	-0.035	0.023	0.013
The number of uneducated people	0.026	0.101	-0.096	0.074
Number of adult literacy	0.000	0.128	0.018	-0.107
Employees in electricity, gas, steam and air conditioning sector	0.029	-0.105	0.197	-0.043
Active unemployed population	0.048	-0.072	0.042	0.057
Building sector employees	0.030	0.055	0.016	-0.109
Agro-industrial employees	-0.038	0.194	0.049	-0.095
Number of skilled workers in agriculture, forestry	-0.057	0.253	-0.008	0.000

and fishing				
Independent Staff	0.025	0.116	-0.073	-0.021
Education sector employees	0.051	-0.024	0.006	-0.016
families with 2 educated people	0.060	-0.007	-0.054	-0.014
Number of non-residential apartments built with steel frame	0.086	0.086	-0.349	0.107
Number of non-residential apartments built with concrete	-0.081	-0.057	0.491	-0.079
The number of housing units built of brick and wood or wood and stone	-0.040	0.335	-0.231	-0.057
The number of housing units	0.162	-0.013	-0.056	-0.010
The number of housing units connected to the public sewer network	0.055	-0.055	-0.035	0.116
The number of housing units which have a telephone and electricity, gas and water	0.070	-0.033	-0.068	-0.013
The number of housing units that have electricity	0.062	-0.015	-0.055	-0.011
The number of housing units that have water	0.063	-0.020	-0.050	-0.016
The number of housing units that have gas	0.069	-0.029	-0.067	-0.019
Number of non-residential apartment unit with an area of 101 to 150 m.	-0.058	-0.034	0.409	-0.048
The number of immigrants arrived during the last 5 years in other cities	0.039	-0.025	0.049	-0.007
The number of active health centers	-0.058	0.247	-0.016	0.033
The number of health centers	0.042	-0.033	0.032	0.015
Number of health centers depending on The Ministry of Health and Medical Education	0.017	-0.015	0.093	0.069
The number of public libraries	0.000	-0.070	0.220	0.059
Number of TV stations with inland broadcast	0.008	-0.099	-0.038	0.497
The number of available books on art and cultural centers	0.046	-0.140	0.107	0.125
Number of radio stations with inland broadcast	0.001	0.014	-0.181	0.537

Table 5 - The correlation coefficient between parameters before and after rotation (RF: author)

factors	1	2	3	4
1	0.921	0.302	0.234	0.078
2	-0.374	0.731	0.388	0.419
3	0.050	-0.564	0.269	0.779
4	0.098	0.238	-0.850	0.459

In the next stage, the rotated factor matrix, according to the factor analysis on thirty four indicators, four factors are defined as main factors. These factors and their indicators are:

- First factor indicators:

The number of literate women, the number of literate men, the number of people with primary education, the number of people with junior high education, the number of people with high school education, the number of people with pre-college education, the number of illiterate people, the number of adult literacy, workers of the electricity, gas, steam, and ventilation department, the number of jobless people, the number of independent workers, workers of educational departments, the number of families with two educated members, the number of houses with steel structure, the number of dwelling units, the number of dwelling units equipped with public sewage systems, the number of dwelling units equipped with telephone, electricity, water, gas, the number of dwelling units equipped with electricity, the number of dwelling units equipped with water, the number of dwelling units equipped with gas, the number of immigrants entered within the past 5 years into other towns of the province, the number of hygiene and medical centers, the number of institutions related to the ministry of hygiene and medicine and medical education, the number of public libraries, the number of books in cultural and art institutes.

- Second factor indicators:

The number of the workers of the department of industry and cultivation, the number of skilled agriculture workers, fishing and woodsman, the number of dwelling units built out of bricks and woods or woods and stone, the number of active hygiene centers.

- Third factor indicators:

The number of houses built out of concrete, the number of houses with areas between 101 to 150 meters.

- Fourth factor indicators:

The number of television broadcasting stations with inland programs, the number of radio broadcasting stations with inland programs

First factor indicators calculate 72.502% of the variance, second factor indicators calculate 10.996%, third factor indicators calculate 4.394% of the total variance, and fourth factor indicators calculate 3.112% of the total variance. The next table ranks the provinces by these 4 factors.

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Table 6 – provinces rankings depended on factors (RF: results)

Fourth factor	provinces	Third factor	provinces	Second factor	provinces	First factor	provinces	Sr
1.74	East Azarbayjan	2.90	Esfehan	2.194	Khorasan Razavi	4.81	Tehran	1
1.62	South Khorasan	2.66	Fars	2.193	West Azarbayjan	1.26	Khorasan Razavi	2
1.46	Khouzestan	1.79	Khouzestan	2.05	East Azarbayjan	0.94	Esfehan	3
1.23	Lorestan	1.42	Mozandaran	1.51	Mozandaran	0.56	Khouzestan	4
0.96	Sistan va Balouchestan	1.21	Tehran	1.20	Tehran	0.41	Fars	5
0.70	Qom	0.74	Boushehr	1.19	Golestan	0.40	Yazd	6
0.60	Kerman	0.51	North Khorasan	1.04	Yazd	0.36	East Azarbayjan	7
0.57	Gilan	0.37	Charmahal va bakhtiari	0.77	Kordestan	0.19	Alborz	8
0.45	Ardebil	0.354	Yazd	0.72	Kerman	-0.02	Kerman	9
0.44	Esfehan	0.353	Gilan	0.69	Gilan	-0.12	West Azarbayjan	10
0.42	Kermanshah	0.16	Hormozgan	0.62	Fars	-0.12	Kermanshah	11
0.21	Yazd	0.13	Khorasan Razavi	0.26	Sistan va Balouchestan	-0.15	Hamedan	12
0.19	West Azarbayjan	0.07	Kerman	0.17	Hamedan	-0.17	Lorestan	13
0.17	Fars	-0.01	Eilam	0.10	Lorestan	-0.18	Gilan	14
0.10	North Khorasan	-0.08	Kohgelouye va Boeirahmad	0.02	Kermanshah	-0.19	Markazi	15
0.09	Markazi	-0.15	Ardebil	-0.016	Ardebil	-0.24	Mozandaran	16
0.01	Tehran	-0.19	Semnan	-0.31	North Khorasan	-0.26	Sistan va Balouchestan	17
00.18	Zanjan	-0.36	Kermanshah	-0.36	Hormozgan	-0.28	Qom	18
-0.226	Semnan	-0.38	Markazi	-0.40	Khouzestan	-0.31	Ghazvin	19
-0.229	Kohgelouye va Boeirahmad	-0.39	Hamedan	-0.41	Zanjan	-0.34	Kordestan	20
-0.33	Hormozgan	-0.42	West Azarbayjan	-0.511	Esfehan	-0.42	Hormozgan	21
-0.34	Kordestan	-0.43	Zanjan	-0.513	Markazi	-0.467	Zanjan	22
-0.35	Eilam	-0.44	Golestan	-0.53	Ghazvin	-0.469	Ardebil	23
-0.38	Boushehr	-0.46	Alborz	-0.64	Alborz	-0.474	Golestan	24
-0.42	Ghazvin	-0.67	Qom	-0.70	Charmahal va	-0.522	Semnan	25

					bakhtiari			
-0.57	Charmahal va bakhtiari	-0.69	Ghazvin	-0.72	South Khorasan	-0.524	Boushehr	26
-0.61	Mozandaran	-0.71	Kordestan	-0.76	Kohgelouye va Boeirahmad	-0.54	Charmahal va bakhtiari	27
-0.76	Hamedan	-0.72	Sistan va Balouchestan	-0.96	Eilam	-0.55	North Khorasan	28
-1.39	Khorasan Razavi	-0.83	South Khorasan	-1.03	Semnan	-0.58	South Khorasan	29
-1.62	Golestan	-1.00	Lorestan	-1.06	Boushehr	-0.59	Eilam	30
-3.38	Alborz	-1.30	East Azarbayjan	-1.17	Qom	-0.62	Kohgelouye va Boeirahmad	31

After using the factor analysis method and determining the factors using the cluster analysis method, the equal levels must be determined to categorize the provinces with the most equality in their factor values in the same clusters. This method is a complementary to the preference. Three equal cluster of provinces are defined in three levels as deprived and under developed (level 3), average developed (level 2), and developed (level1).

Table 7 - Cluster analysis of provinces

Provinces	Clusters	provinces	clusters
Fars	1	East Azarbayjan	2
Ghazvin	3	West Azarbayjan	3
Qom	3	Ardebil	3
Kordestan	3	Esfehan	1
Kerman	2	Alborz	3
Kermanshah	3	Eilam	3
Kohgelouye va Boeirahmad	3	Boushehr	3
Golestan	3	Tehran	1
Gilan	3	Charmal va bakhtiari	3
Lorestan	3	South Khorasan	3
Mozandaran	3	Khorasan Razavi	1
Markazi	3	North Khorasan	2
Hormozgan	3	Khouzestan	2
Hamedan	3	Zanjan	3
Yazd	2	Semnan	3
		Sistan va Balouchestan	3

13. Conclusion:

It can be concluded that the most important factor for development relies upon the coordination of the economic, social and environmental features to be led to the sustainability of social welfare. To achieve the development and the quality of life simultaneously, integrated planning for equilibrium among economic, social and environmental aspects is necessary. Sustainable development is seeking the enhancement in life quality by the use of designs compatible with climatic features, fortifying the foundations of human development, and by supplementing the social welfare. Yet, it is willing to embrace all the economic, social and environmental criterions. Regarding to the results, only four provinces of Tehran, Isfahan, Fars, and KhorasanRazavi belong to the cluster of developed provinces which indicates the unbalanced distribution of facilities in the width of the country. This is while only five provinces belong to the cluster of average developed provinces which could be concluded that more than 70 percent of the provinces are deprived. The direct influence of economic programs by considering the strong correlation of economic indicators to other indicators of sustainable development necessitates realizing these aspects in all other aspects of sustainable development. This distribution must be based upon land surveying which could culminate in the elimination of deprivation from most of the countries provinces.

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